

Future Plates: transforming school lunches to help rebalance diets in the USA

How to inspire a better protein balance in cooking and eating

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By: Forum for the Future and the Protein Challenge 2040 Future Plates initiative

The Future Plates initiative aims to rebalance protein in diets as part of the Protein Challenge 2040, an ambitious coalition to create a sustainable future for protein. Partners of Future Plates in the USA include:



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The views expressed in this report are not necessarily representative of Protein Challenge 2040 partners or other contributors to this report.

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EXECUTIVE SUMMARY

WHY DO DIETS IN THE U.S. NEED TO SHIFT?

Amidst 2020, a year that seemingly presents wave after wave of difficult news - from a global pandemic to the worst wildfire season on record and further acts of racial injustice in cities around the United States - there are signals of a deeper transformation emerging. Awareness is growing amongst Americans of the need to improve the resilience of our food system and its ability to deliver 'sustainable nutrition'. The connection between individual, community and public health is becoming more apparent and, even in the face of disruption, young people around the country continue to be strong advocates for a more just and sustainable future.

The way in which we produce and consume food sits at the intersection of many of these challenges. Rebalancing diets to more diverse proteins provides an opportunity to improve both planetary and human health outcomes. Yet, while there are signs that diets in the United States are beginning to rebalance, we need to accelerate efforts to build the enabling conditions needed to bring about a mainstream shift.

FUTURE PLATES: SCHOOLS AND STUDENTS ARE POWERFUL ENABLERS

Enabling students and schools to become catalysts for change formed a key element of the Future Plates initiative working to rebalance protein in diets. As part of Protein Challenge 2040 - an ambitious collaboration to create a sustainable future for the protein sector - this initiative has focussed on how to support students with access to more diverse food choices that benefit their health and the environment, while engaging them as critical change agents. This report brings together the insights and experience gained from working with a diverse group across the food system, from NGOs, food companies, school district representatives, child behavior change specialists, to communications professionals, to identify the current barriers in order to change and start testing possible interventions. The insights shared in this report are relevant for those working on behavior change, both inside and outside of the school lunch system.



SEVEN KEY INSIGHTS FOR OVERCOMING BARRIERS TO CHANGE

- **Product development has to be adaptable and responsive to the need** if it is going to be successful in the constrained market of the school food system and meet the collective demand criteria of school districts.
- **It takes more than food – creating the right enabling environment is key** for encouraging students and wider consumers to take culinary risks and try new items.
- **Behavior change efforts have to be targeted and take inequality into account**, as drivers of behaviors often differ depending on identity, age, gender, and other key background factors, such as food insecurity.
- **Change requires radical new collaborations** built on trusted relationships between stakeholders that traditionally hold a competitive or customer-seller relationship, in order to invest in enabling healthy, sustainable diets for the next generation.
- **Behavior change is not just about an individual, but about the whole community.** It is therefore critical to engage and consider the influence of peers, parents and other members of the community.

- **Innovation for affordable food needs to be seen as a welcome challenge** through collaborative action and challenging long-held assumptions and perceptions.
- **Long-lasting change requires a shift in the narrative about food and subsidized food provision** to overcome deeply-held beliefs about the value associated with plant-based protein and negative perceptions of school meals.

YOUR ROLE IN ACCELERATING CHANGE

This document includes clear recommendations for actors including food manufacturers, schools and NGOs. No matter where you sit in the school food system, these five actions will be vital if we are to collectively accelerate the shift in diets that we so urgently need to see:

- **Collaboration** is required to overcome a challenge as significant and important as shifting diets. Engaging a diversity of perspectives, working together across traditional seller-customer relationships and demonstrating a collective demand signal for change are crucial for driving transformative change.

- **Public narratives** are formed through the accumulation of stories from a wide variety of sources and underpin so many of our daily choices and habits. Consider how your marketing and communications are contributing to a positive narrative around sustainable diets.
- **Invest in innovation** that meets the diverse needs and opportunities associated with plant-based options - taste, nutrition, convenience and environmental impact. Embrace driving innovation, even in margin-constrained markets, as a welcome challenge for bringing sustainable nutrition into the mainstream.
- **Empower young people** as influential agents of change to drive progress towards a more just and sustainable future.
- Build on the insights from this report to **experiment** within your own work - in the school cafeteria, innovation lab, or with your communications team - and share your learnings with others.

To find out more about the Protein Challenge 2040 visit: <https://www.forumforthefuture.org/protein-challenge>

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INTRODUCTION





WHY DO U.S. DIETS NEED TO CHANGE?

Food is at the heart of many of the world's environmental, social and economic challenges. This includes how we address climate change and biodiversity loss, while also delivering healthy, nutritious food for all in the face of shrinking resources and a growing global population. The COVID-19 crisis has only further exacerbated the need to address the impact of the food system on our planet, our health and well-being. It has brought to light drastic challenges for food security and revealed the fragilities in today's food supply chains. A focus on delivering health and nutritional outcomes - whilst restoring the key ecosystems and farming livelihoods on which we depend - can transform the way that we produce and consume food to live healthily within environmental limits.

Protein, specifically, is fundamental to human health, but the way we currently produce and eat it creates a disproportionate impact on natural resources. Livestock production is estimated to account for 14.5% of the world's GHG emissions.¹ Soy production, a key source of protein for food and animal feed, is one of the leading drivers of deforestation in Latin America, with ten million hectares of forest loss expected in Brazil from soy production over the next decade. Deforestation has huge consequences for biodiversity and the climate.²

Within the context of the United States, there is, on the whole, overconsumption of protein, particularly from animal sources. The average American eats 90g of protein per day, despite U.S. dietary guidelines of 50-60g per day, depending on factors like age and activity. The protein-heavy diet of the typical person in the U.S. emits 1.4 tons of carbon dioxide equivalent - double that of the average world diet, thus posing a disproportionate threat to living within our planetary boundaries. Other challenges, such as biodiversity and soil degradation bring the future security of supply into question.³ Overconsumption is also correlated with higher rates of heart disease, stroke, diabetes, obesity, and certain cancers. Rebalancing diets to more diverse proteins provides an opportunity to improve both planet and human health outcomes. Indeed, one estimate suggests that: transitioning U.S. diets to the recommended amount of protein per day could save \$150 billion per year in health-care costs by 2050.⁴

In order to address the contribution of the protein system to the world's pressing social and environmental challenges, both protein consumption and production need to shift, enabling Americans to eat "less and better" protein.

WHY IS THIS A KEY MOMENT TO ENABLE A MAINSTREAM SHIFT IN THE U.S.?

The consumption of plant-based proteins is increasing, demonstrating a shift in some traditional attitudes towards vegetarian and flexitarian eating.

- By some estimates, nearly 70% of Americans are attempting to boost their plant-based protein consumption.⁵ More than 50% of consumers report that they attempt to practice this behavior at least once a week through home and foodservice outlets.
- The U.S. food and beverage industry has seen a 300% increase in the sales of plant-based protein since 2013.
- A recent U.S. consumer trends report found that more than half of those eating more vegetarian meals were choosing them in order to eat healthier.

However, despite the increase in meat-substitutes, consumption levels of red meat and poultry have also increased each year, with a 1.2% increase in consumption per capita between 2018 and 2019. This indicates that, overall, protein consumption - both plant-based and animal-based - is increasing, as opposed to rebalancing.⁶

The momentum creates a new opportunity to enable a mainstream shift towards more diverse protein sources, while reducing food waste and improving how protein is produced - often described as a 'less and better' approach.

70%

of Americans are trying to increase plant-based eating.

Why are people eating more plant-based food?

Plant-based foods are considered synonymous with healthy eating, although this is not always true.

Plant-based proteins are being consumed in addition to animal proteins, rather than as a replacement.

TACKLING THE 'PROTEIN CHALLENGE'

Since 2014, Forum for the Future has convened the Protein Challenge 2040 - a multi-stakeholder collaboration across industry and NGOs - to tackle the question: "How do we provide up to 10 billion people with enough protein in a way that is healthy, affordable and good for the planet?"

Protein Challenge 2040 aims both to rebalance diets and address underlying issues in protein production. As part of the Protein Challenge collaboration, the "[Future Plates initiative](#)" has been looking at how to catalyse a widespread shift in consumer behavior that rebalances protein in diets. In the U.S., the initiative has focused on exploring how to shift mindsets and behaviors through the lens of the school lunch system and its role in shaping young diets, alongside understanding how young people shape their, and their peers', behavior through the "Food for Change" campaign. This project runs in parallel with a project to **transform culinary education in the UK and Europe, resulting in an [Insights Report](#) and [Handbook](#) of teaching resources.**

WHY ARE SCHOOLS A CATALYST FOR CHANGE?

Today's students are more motivated to tackle climate change

A 2019 poll of teenagers aged 13-17, conducted by the Washington Post and the Kaiser Family Foundation, found that like adults, roughly a third of teenagers say the issue of climate change is “extremely important” to them personally. While the majority of adults were reported to feel helpless about climate change, most teenagers (54%) were said to be motivated and translating that into action, with 1 in 4 partaking in either protests, rallies or contacting elected officials.⁷

Supporting good habits among students has long-term benefits

Shifting eating habits earlier in life can help to enable longer, healthier lives for the next generation.⁸ Critically, high school students are at a transition point between the eating cultures of their family and defining their own set of values for their diet.

Students are influencers for positive change

Young people are critical agents for societal change. Not only are students at a key transitional point in their lives for making their own food choices, but they also have increasing power to influence the consumer choices of others, including peers and parents - with nearly nine in ten parents saying that their children influence their purchasing behavior.^{9,10} In the wake of millions of American high school students walking out of school to protest against inaction on climate change, students have advocated for a climate change curriculum, influenced the media and elevated the national awareness on climate issues.^{11,12,13} Research collected by the Ad Council found that 16% of students are now requesting more plant-based options from their school menus.

Schools are a key influence in young peoples' lives and can play an important role in supporting better dietary choices. And, as was evident as schools shut down due to the COVID-19 pandemic, the U.S. National School Lunch Program plays a crucial role in providing nutrition and hunger relief for the more than 11.74 million children living in a food insecure, or very low food security households.¹⁴ Therefore, attention to the school lunch system could potentially have a disproportionately positive impact on those most in need of quality nutrition.

Already more than 40% of school food directors are planning to order more vegetarian options in the next two years to support the increasing demand. These school food directors will need the resources and support to transition in a way that ensures high-quality plant-based options are available as part of a healthy, balanced diet.

Why work with students?

Students are concerned about the planet and motivated to take action for positive change.

Students are at a key transition point and the habits and palettes they build now will have a strong bearing on their dietary habits in later life.

Students are influencers and can positively influence each other, their families and their communities for positive change.

Why work in schools?

Schools have a huge influence in students' lives and can support better dietary choices.

The U.S. National School Lunch Program provides essential nutrition and hunger relief at scale and could have a disproportionately positive impact on those most in need of quality nutrition.

54%

of teenagers want to take action on climate change.



THE U.S. NATIONAL SCHOOL LUNCH PROGRAM

The National School Lunch Program is a federal state program established in 1946 to provide low-cost or free lunches to eligible children at public and nonprofit private schools across the United States. With a reach of nearly 100,000 schools and institutions serving meals to 30 million students each day, the program is responsible for 4.9 billion lunches every year and represents a crucial opportunity for the food sector to enable a mainstream shift to healthier eating habits for individuals and the planet.

We know American diets need to shift to avoid the worst impacts of climate change, and improve public health. Having identified high school students and the U.S. school lunch program as a high-impact area for driving this dietary shift, what is needed to enable a behavior shift among students towards more plant-based options? This briefing outlines key research findings and will be of value for schools, NGOs, and diverse organizations working on rebalancing diets towards plant-forward eating.

FUTURE PLATES: PILOTING HOW SCHOOLS CAN SUPPORT A SHIFT IN DIETS



Behavior change in schools is a key route to achieving sustainable nutrition for all at a critical time in young peoples' lives. The Future Plates initiative in the U.S. has aimed to understand the conditions needed to support people to choose and consume more plant-based foods in U.S. public schools. From 2018 to 2020, the initiative brought together a diverse group across the food system - from NGOs, food companies, school district representatives, child behavior change specialists, to communications professionals - in order to identify the current barriers to change and to start testing possible interventions.

“Each school district brought a unique perspective regarding the reason(s) why increasing plant based options is important. Offering variety to the PreK-12 students is a necessity in a changing world of flavor and food brought about by diversity.”

Tammy Yarmon, Director Nutrition Services,
Omaha Public Schools

DESIGNING A PILOT PROGRAM WITH TEN U.S. SCHOOL DISTRICTS

The initiative's partners and collaborators worked with ten diverse school districts across the U.S., which serve a combined total of over 38 million meals per year, to explore how to shift student behavior in the cafeteria and beyond. The ten school districts were chosen based on the commitment of their School Nutrition Directors to prioritize sustainable and healthy diets in their program whilst also making sure the districts were representative of a diversity of cultures, populations and challenges within the

school food system. The initiative sought to ensure the pilot findings would have broad applicability in the U.S..

The partners worked together to design a pilot that would take a systemic approach in addressing multiple barriers to rebalancing protein in diets in the U.S. **The intention was to learn and help deliver insights that would inform the design of effective interventions, both inside and outside of the school lunch system.**

We worked with ten school districts across the U.S., serving over 38 million meals per year:

Arlington, VA
Austin, TX
Boulder, CO
Burke, GA
Minneapolis, MN
Napa, CA
Omaha, NE
Portland, OR
Roseville, MN
Windham Raymond, ME

A TWO-TRACK APPROACH

Conversations with School Nutrition Directors and food manufacturers, as well as desk research, clearly highlighted two key interventions that needed to happen in parallel, in order to enable better food choices: a shift in the perception of plant-based foods and an increase in the quality and quantity of plant-based menu options.

Without addressing these two aspects together, the students, schools and manufacturers have the potential to remain in stasis, unable to demonstrate the demand to food manufacturers for plant-based products. It additionally reinforces the lack of demand by being unable to offer tasty plant-based dishes.

1

The quality and quantity of plant-based protein options available in school cafeterias needs to increase. In order for students to choose plant-based options, they have to be delicious. Currently School Nutrition Directors often struggle to find plant-based ingredients and products that are tasty and appealing, while meeting the requirements of the U.S. School Lunch Program. In turn, food manufacturers are reluctant to enter into the school lunch market, which operates on low margins and is highly regulated, without a demonstrable and growing demand from students and School Nutrition Directors.

The innovation aspect of our pilot sought to address this by bringing School Nutrition Directors together to create higher volumes of collective demand for new high-quality plant-based options, while engaging directly with food manufacturers to ensure that new plant-based products were effectively developed to meet the needs of schools and students.



Innovation case study:

In July 2018, school districts participating in the Future Plates initiative released a request for proposal (RFP) for new plant-based products. These were across four 'platforms' (product or ingredient categories that can be used as part of a plant-based menu offering):

1. **Pulse paste/puree** – a pulse-based puree or paste to be used for multiple menu options (comparable to hummus or refried beans)
2. **Protein-rich flour replacement** – to increase the overall protein in a plant-based menu option
3. **Flexible and moldable plant-based protein** – a plant-based protein ingredient (and relevant products) intended to replace ground meat but does not directly replicate the sensory experience.

4. **Functional equivalents** – a plant-based meat alternative that replicates the sensory (taste and texture) experience of meat - beef, chicken, or other animal based protein product.

Food manufacturers rose to the challenge by putting forward new or existing products to meet the RFP. After evaluating them based on taste and other key criteria, the Food Service Directors identified three new plant-based products that were able to meet the RFP on cost, nutritional content, and functionality.

These are:

- Lentil Crumbles developed by Inland Empire
- White Bean Puree developed by American Bean
- Pulled Oats developed by Gold & Green



2

The intervention needs to support a shift in attitudes to plant-based food. Our pilot set out to test what it takes to enable a growth in demand for these options through a student-centered engagement campaign. Named “Food for Change”, the campaign provided a **full communications toolkit** to student leaders, which included student engagement workshop guides and ready-made posters and customizable logos, plant-based emojis and factsheets. These resources aimed to help students support a peer-to-peer shift in how they think about and consume plant-based protein.

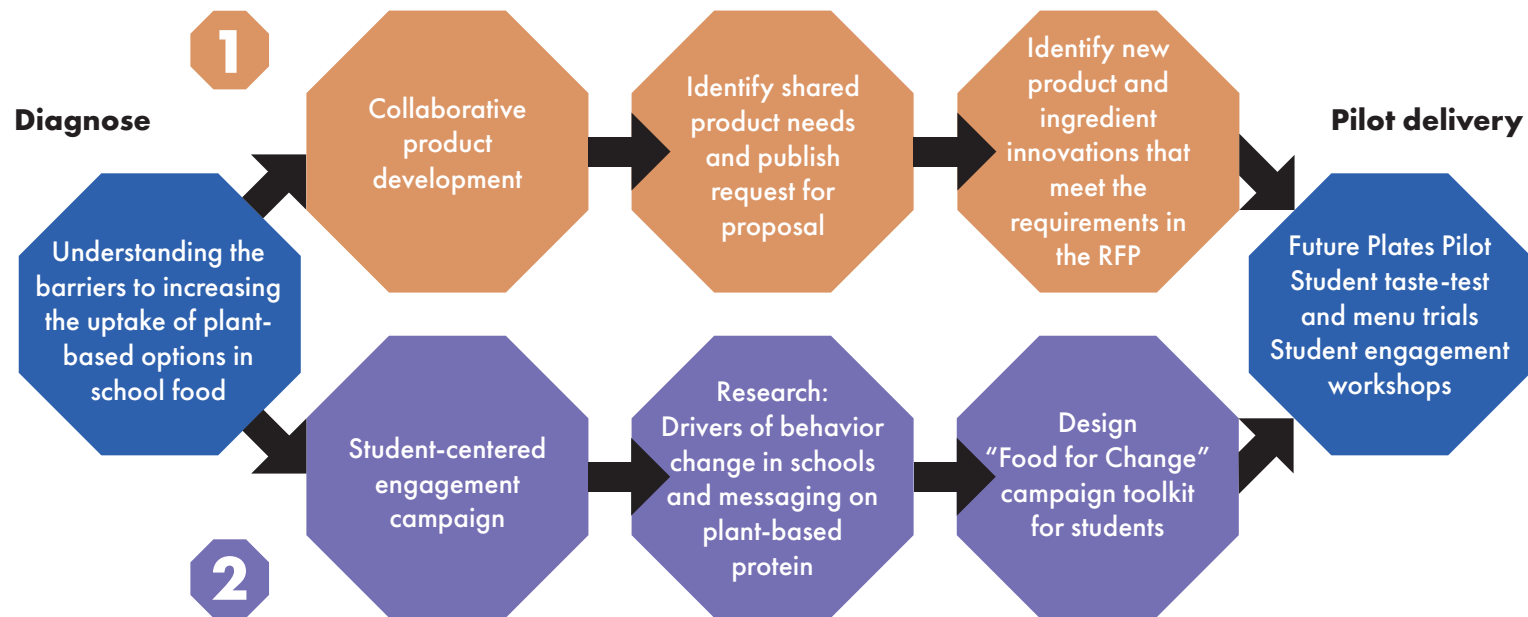
The group enlisted the Ad Council’s social messaging experts alongside behavior change specialists such as the Michael Cohen Group, to help partners understand the existing science behind behavior change in schools and effective messaging around plant-based options.



“We knew it would be a challenge to solve for taste, cost and nutrition, but it’s exciting to have the opportunity to open students’ eyes to the possibility of great-tasting, nutritious, and plant-based foods!”

Steve Hess, Senior Director, Snacks Research and Development at The Hershey Company

Pilot design: two track approach



INSIGHTS ABOUND DESPITE COVID-19 DISRUPTION

Our 10 partner school districts were in the second month of delivering the pilots when COVID-19 caused schools around the country to shut down. Our partners are working tirelessly to continue to provide food to their students and families during the pandemic. However, we had already learned a lot about enabling a shift and we hope that the key research findings outlined in this document will provide useful insights for stakeholders in schools, NGOs, and other organizations working on rebalancing diets in the U.S. as we return to a new normal.

HOW CAN WE ENABLE A DIETARY SHIFT IN SCHOOLS?



WHAT ARE THE BARRIERS TO CHANGE?

A deep exploration of the barriers to change set the foundation for the pilot process. Here, we used an 'iceberg model' to dive deeper into the underlying reasons for the lack of access to a wide variety of quality plant-based options in schools and negative perceptions of plant-based protein in the U.S.

Incorporating a diversity of perspectives into the development of this framework helped build out a robust understanding of the system as everyone sees a problem, event or system differently, depending on their vantage point. As you move deeper below the water line, you have the greatest potential to create wider 'ripple effects.' This enabled us to draw out seven crucial insights about what it takes to create change, and craft a strategy where the pilot would have the most potential to create impact.

Barriers

In the U.S. School Lunch Program interest in plant-based options is growing but School Nutrition Directors often lack access to a wide variety of high-quality plant-based options.

Lack of supportive school culture, time available for lunch and the social environment all constrain students' dietary choices.

The regulatory context, and the influence of big market players, do not support transitions to plant-based diets.

The price point and distribution make the business case for innovation difficult and add barriers for School Nutrition Directors to try new menu options.

School Nutrition Directors, food manufacturers and distributors struggle to communicate in a way that supports the development of new menu items or innovative products that meet students' needs.

There is often a lack of engagement with parents, teachers and recognition of peer-to-peer influence in dietary behavior change initiatives.

Deeply held beliefs and perceptions of diet, health, food access and the value associated with plant-based protein all impeded the uptake of plant-based diets in the U.S.

Lack of awareness of the need to change diets from the environmental perspective

The negative and enduring perception surrounding school meals has been fueled by pop culture and reinforced by social stigmas about what school meals are and who eats them.

Insights

1. Product development has to be adaptable and responsive to the need.

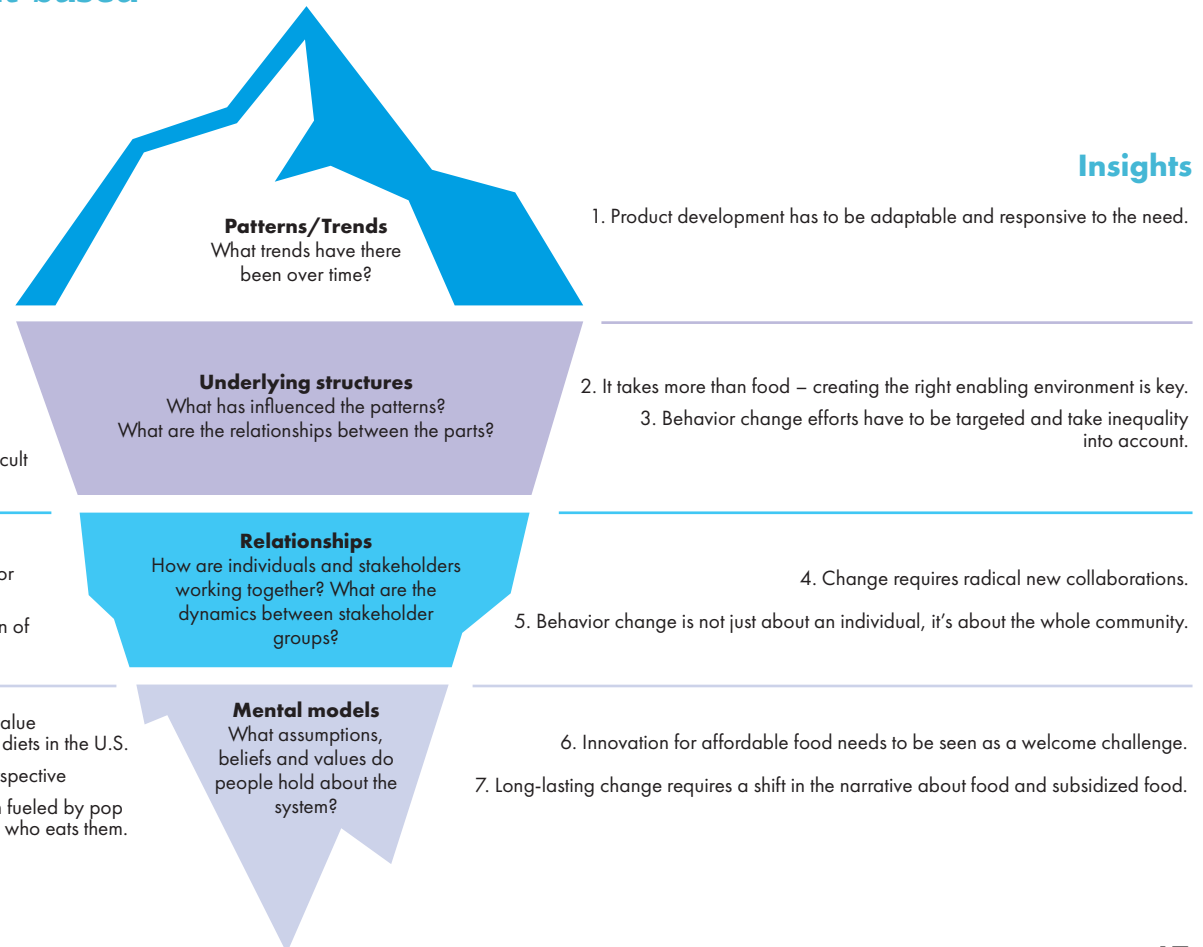
2. It takes more than food – creating the right enabling environment is key.
3. Behavior change efforts have to be targeted and take inequality into account.

4. Change requires radical new collaborations.

5. Behavior change is not just about an individual, it's about the whole community.

6. Innovation for affordable food needs to be seen as a welcome challenge.

7. Long-lasting change requires a shift in the narrative about food and subsidized food.



SHARING OUR INSIGHTS TO-DATE

1. PRODUCT DEVELOPMENT HAS TO BE ADAPTABLE AND RESPONSIVE TO THE NEED

Food manufacturers need a clear business case to invest in new, delicious and nutritious plant-based menu options. Collective demand signals from school districts and ingredients that are both flexible and aspirational are needed to succeed within the challenging regulatory context, price point and distribution system.

The U.S. School Lunch Program is highly regulated and operates at small margins. For smaller plant-based manufacturers, this constrained system can be difficult to enter and navigate. For companies that are not well established within the school food system, understanding the specific needs of students and School Nutrition Directors can be difficult. We convened School Nutrition Directors and food manufacturers - both those already working within the school food system and those hoping to do so - to understand the factors for successful innovation in the school food system. These included:

Product flexibility: Current plant-based product offerings tend to be niche and heavily seasoned. Given the diversity across school districts, from size, staff resources, kitchen set-ups, regional taste preferences, and price constraints, school districts need individual items that are neutral in flavor, have clean labels¹⁵ and are adaptable to

different preparation techniques. These attributes allow products to be used in a variety of ways throughout menu cycles, which in turn increases the purchase volume and makes distribution and price barriers easier to overcome.

Aspirational products: Current product offerings are driven by a feedback loop with “kid food” (high in salt, fat and sugars) made easily available to students and pushed through advertising, which drives further demand for those products. Instead, school districts are looking for products that are not tailored toward students’ preferences today, but that are deliberately shifting students away from “kid food” to “real food”, which is less processed and high in nutritional value.

Business case: Food manufacturers need a clear business case to invest in innovation. This is primarily dependent on volume of demand, given the price-constrained market of the school food system. The volume

necessary to make a strong business case can be achieved independently by large urban school districts, but many of the over 13,000 school districts do not have large enough purchasing power on their own to encourage innovation. For these districts, working in collaboration through regional or national networks can help them to pool their demand for new products. Distributors are also critical stakeholders to engage with, and also need a clear volume-driven business case. Not all school districts can prioritize plant-based protein innovation, so successful uptake will require education and outreach to other school districts to deliver large-scale future demand.

Implications for action:

Every school district and student population is unique. Products that are flexible, adaptable and responsive to the needs of School Nutrition Directors will be more successful within the price and regulation-constrained market of the school food system.

How might we develop products and menu items that are able to appeal to multiple consumer needs and demands in terms of taste, texture, convenience and nutritional value?

2. IT TAKES MORE THAN FOOD - CREATING THE RIGHT ENABLING ENVIRONMENT IS KEY

Our behavior research experts found that a supportive school culture, the amount of time available for lunch and the social environment all have a significant impact on student choices.

Research into successful behavior change campaigns within schools identified key elements within the structure of the school food system needed for successful school nutrition and health shifts. These include:

Link with curriculum and across the school: Connecting a behavior change campaign with the students' education curriculum and beyond is likely to increase its impact. This could take the form of hands-on culinary activities, digital screens in cafeterias to display menu options and nutrition information, as well as taking a 'whole-school' approach – with school support for the campaign visible to students and parents via posters, events and discussions.

Supportive staff: Within the eating environment, research demonstrates that cafeteria workers have a significant impact on students' food preferences and choices. Many of our school district partners had training sessions with their staff to help them understand the value of plant-based options so they would feel invested in supporting new plant-based menu options.

Conducive eating environment: Similarly the school lunch schedule and duration impacts students' choices - those with 30 minutes or longer to eat make healthier choices as they have more time to select meals and consume them. In contrast, students with lunch programs lasting 20 minutes or fewer tend to make less healthy choices and select "grab n' go" or handheld items which are usually more processed food, higher in salt, fat and sugar.

Implications for action:

External factors can encourage students to take culinary risks and try new items. These include availability, appropriate preparation, time allotted for the lunch period, digital menus, and culturally appropriate meals.

How might we consider developing a more supportive enabling environment for consumers in other food service sectors - from casual dining to workplace cafeterias - to choose plant-based options?



3. BEHAVIOR CHANGE EFFORTS HAVE TO BE TARGETED AND TAKE INEQUALITY INTO ACCOUNT

Drivers of behavior change vary significantly across student demographics and characteristics.

Behavior change needs to be targeted and take into account the spectrum of different eating habits, some of which is linked to identity, age, gender, and other background factors. Research collected by Dr. Michael Cohen, a developmental psychologist, demonstrates that, overall, girls select fruits and vegetables more frequently than boys, and high school students increasingly make food choices independently of family norms. As part of our design process we worked with stakeholders to create four main student profiles which were later used to test our student engagement methodology. These student profiles are not comprehensive but are rather intended to highlight the differing ways of thinking and contexts that influence different students. We used them to determine the sub-groups within students to focus on with the toolkit. For example,

Implications for action

Behavior change initiatives need to balance the efficacy of targeted campaigns and approaches with equity and ensuring all students of all demographics are empowered to make decisions that are better for their health and the health of the environment.

How might shifts in sustainable diets contribute to a more just and equitable food landscape?

there was broad agreement that students dealing with food insecurity at home are more risk averse in food selection and therefore less likely to advocate for plant-based options if they are not already familiar with them. At the same time, it was incredibly important that all students, regardless of their family income - have access to healthy plant-based options, the opportunity to choose nutritious food, and the information in the “Food for Change” campaign. We held accessibility

as a key design principle for the “Food for Change” campaign.

Our pilot focused on high school students, a group that is particularly important because they are able to understand the environmental impact of their actions. Likewise, while younger students are more willing to try new foods, they often lack the ability to purchase food, influence family and peers, and less likely to access social media.

Example Personas

“The Future Success” (grade 12)

You might describe me as an outgoing “cool kid” but I have very few close friends.

At school, I need food – which my family cannot consistently afford. I also need social acceptance, stability and mentorship.

I currently purchase Flammin’ Hot Cheetos, soda, pizza, hot dogs and hamburgers in the cafeteria.

When I’m not at school you can find me at sports practice, hanging out at a friend’s house, or at my part-time job.

The big influencers in my life are friends, coaches and professional athletes.

My biggest concern at school is going home; when and what will my next meal be?

My current objections around plant-based protein are that it isn’t cool, I don’t know what it is, and it doesn’t advance my social status the same way soda, Cheetos or pizza will; also the cost.

“American Dreamer” (grade 12)

You might describe me as independent, self-conscious, a bit angsty, lonely and disconnected.

At school, I need to feel part of the “American” crowd and to do well academically.

I currently purchase “American” (burgers, fries, tenders) in the cafeteria and I avoid things like the coconut curry.

When I’m not at school, you are likely to find me studying, at dance class or church.

The big influencers in my life are friends and celebrities.

My big concerns at school are fitting in and eliminating my accent or dialect.

My objection to plant-based protein is that it is weird and not accepted by popular peers.

4. CHANGE REQUIRES RADICAL NEW COLLABORATIONS

Developing new, delicious and nutritious plant-based options for the school food system requires a new way of operating, with collaboration between stakeholders that have traditionally held a primarily customer-seller relationship.

Collaboration between school districts and food manufacturers

On-going communication and collaboration between school districts and food manufacturers is essential to ensure that new products and ingredients support school districts' menus, have the desired product profile (flavor, texture and appearance) and can evolve as needs change. Within the school food system there are a relatively limited number of spaces where School Nutrition Directors can work collaboratively with food manufacturers. Successful collaboration requires commitment from both parties - that the School Nutrition Directors will follow up on the collaborations with purchases and that the food manufacturers will respond to feedback from the School Nutrition Directors and adapt products accordingly. Similarly, School Nutrition Directors working closely together to articulate their needs can send a clear demand signal to manufacturers - this is particularly effective when districts of varying sizes work together to ensure smaller and rural districts are included.



Implications for action:

Successful adoption of new plant-based options will only happen through new, trusted relationships between food manufacturers, distributors, School Nutrition Directors, school administrators and community partners.

How might new collaborations between food manufacturers, retailers or food service providers help shift perceptions of plant-based options in the U.S.?



5. BEHAVIOR CHANGE IS NOT JUST ABOUT AN INDIVIDUAL, IT'S ABOUT THE WHOLE COMMUNITY

Behavior change is strongly influenced by how students interact with their peers, parents and other members of their community.

Foster a supportive school culture

A supportive school culture is strongly predictive of a campaign's success. Importantly, the support of all 'actors' - from the district and school level leadership determining desirable school culture, to teacher and school staff buy-in - is essential to a campaign's implementation and effectiveness. Relative to other parts of the school day, students spend a small amount of time in the cafeteria, and yet lessons and information about nutrition, the environment and health abound within the school. A holistic approach to student engagement around dietary choices improves the likelihood of success.

Leverage peer-to-peer influence

Previous behavior change efforts have reflected that peer-to-peer influence is a crucial indicator of success. In the "Food for Change" behavior campaign, the framing of students as agents of change was a critical design principle to enable students to take the lead in influencing and engaging their peers. Students are both influencers and influenced by others. This age group

is heavily influenced by celebrities, peers, and other prominent adults. They, in turn, can influence younger students, siblings, and their families. Older students are more likely to engage on social media platforms, and are thus able to influence their peers in additional ways. The pilot design needed to ensure that new behaviors a personal benefit, an interpersonal benefit, and a societal benefit, to encourage student engagement.

Engage parents

Parents are significant influencers of dietary behavior and preferences amongst students, so their engagement is critical to support long-term adoption of dietary choices in students. In other behavior change efforts, parental involvement facilitated by frequent, regular, multilingual and culturally sensitive nutrition and health information delivered directly to homes helped facilitate behavior change. The need for, and influence of, parent engagement varies by age as high school students increasingly see themselves as independent from their parents and are willing to make food choices that are different from their families.

Implications for action

A range of stakeholders are needed across the food system for a successful behavior change campaign - engagement and buy-in from parents, teachers, cafeteria workers, and school administrators is important for a campaign to be successful. Likewise, framing and elevating both a personal benefit, an interpersonal benefit, and a societal benefit, will make engagement and adoption more likely.

How might mainstream food system stakeholders consider a holistic approach to community engagement around healthy sustainable diets?



6. INNOVATION FOR AFFORDABLE FOOD NEEDS TO BE SEEN AS A WELCOME CHALLENGE

Negative and enduring perceptions surrounding school meals have been fueled by pop culture and reinforced by social stigmas about what school meals are and who eats them. Collaborative action and engaging with new perspectives can highlight the value of innovation for affordable food products.

Shifting food manufacturers' perceptions

Despite being an important conduit for nutrition, schools were historically seen as the recipient of food trends rather than a target for innovation. Manufacturers did not know what schools wanted, and schools in turn lacked options to provide to students. Developing new, delicious and nutritious plant-based options for the school food system requires a new view of its value. For food manufacturers it requires a shift in perception: from viewing school food as a challenging market with a low price point to appreciating it as a rich and engaging environment to develop new plant-based protein recipes and products that will chime with the next generation and influence their future tastes. In our experience, this progress in shifting the perception of school food by food manufacturers came from direct engagement with the School Nutrition Directors. This involved spending time and effort to better understand the leadership and direction of these programs and visiting schools directly to see first-hand the rich environment for engagement with students.

During our work together, stakeholders articulated a future vision of school cafeterias as the best plant-based restaurants in town – seen as places that provide abundant, healthy, diverse and delicious food.

Implications for action

There is a great deal of value in investing in connection and relationships across stakeholder groups - breaking down barriers between food manufacturers and school districts. By spending time understanding each other's challenges, needs and environments, long-held assumptions and perceptions can be challenged to reimagine food in school cafeterias.

How might the school food context contribute to the broader ecosystem innovating affordable healthy, appealing, plant-based food?



7. LONG-LASTING CHANGE REQUIRES A SHIFT IN THE NARRATIVE AROUND FOOD AND SUBSIDIZED FOOD PROVISION

Across the pilot design process, addressing deeply held beliefs and perceptions of diet, health, food access and the value associated with plant-based protein were recurring themes.

Public narratives are stories that underpin our current reality and help us understand our world. They are everywhere - in the news, in conversations with friends and family, on social media - informing our mindsets and world views, and in turn, how we make decisions. With something as significant and personal as dietary choices, the stories that people hold on to are critical to enabling behavior change. Part of the research conducted by the Ad Council sought to understand the starting point for narratives and mindsets in order to define effective interventions. They conducted a social listening analysis that examined the discourse on social media platforms, in order to better understand consumer engagement with school lunches and plant-based protein. The analysts tracked over 3 million conversations over a 3 year timeframe across social media, blogs, news, and other websites.

Results of the social listening study:

- The plant-based food conversation is dominated by food and recipe information (29% of conversation) for those looking to eat more plant-based food. This points to the importance of leading with taste - delicious options and taste-based messaging will do more to change perceptions of plant-based food that is otherwise sometimes perceived as not filling or bland.
- There is a strong association between school lunch programs and poverty for many working in the school lunch space - 19% of the total school lunch conversation contained a perceptual link between the two. The school lunch program began as a hunger relief program and while the quality of meals has increased significantly in many schools, the negative perception of low-quality food persists. Any effort to shift behavior within the school food system either amongst students, parents, food manufacturers or others must contend with this historic negative perception.

The study also emphasised the importance of social media as a critical outlet for shaping the narrative. It is a key channel for sharing information about food and recipes, as well as offering criticism of existing meals.

Behavior change campaigns should consider the impact of social media on the food landscape and how it influences students' choices, as well as how any initiative fits into the broader external dialog on dietary shifts.

Consequently, our pilot took into account these insights to design a toolkit that is student-centric, utilizes social media, and peer-to-peer influence. Given the complexity of personal perceptions and public narratives around plant-based diets, we tried to avoid political discourse to focus on the taste and environmental benefits.

Implications for action

Public narratives influence public perception and consequently behavior. Efforts to empower students and consumers to make more sustainable choices must navigate and influence public narratives in a way that reflects the nuance and complexity of the issue.

How might your organization, through your marketing efforts, collaborative engagements or public campaigns, contribute to shifting the public narrative around plant-based diets?



WHAT CAN YOU DO TO ACCELERATE CHANGE?

In the wake of COVID-19, schools across the country were shut down and people began to see the value that schools provide beyond education, including publicly provided childcare for working families, and hunger relief for low-income students through the U.S. School Lunch Program.

As School Nutrition Directors work to provide food to students and their families in new and different ways, sustainability and some nutrition initiatives have been put on the back burner, in favor of safe, packaged and shelf-stable options. But behind this, the core challenges of both the public health and climate crises continue to grow in urgency. As we return to a 'new normal', it is critical that we refocus again on these core issues. These insights will be valuable across a diverse range of efforts to enable dietary shifts.

If you are a food manufacturer:

- Consider how you can align your product innovation and overall strategy with the vision of a future in which everyone in our growing global population has access to healthy, affordable nutrition, where sustainable animal protein is produced within environmental limits and well-balanced with plant and alternative proteins.
- Embrace the value of working in the margin-constrained school lunch market as a pathway for business growth, to gain a better understanding of the next generation of consumers and to drive impact against public health and environmental challenges. Collaboration can help you navigate these low margin markets and succeed.
- Understand how your marketing efforts positively or negatively impact public narratives and your customers' perception of products and menu items that make up a sustainable diet.
- Join collaborations such as the [Protein Challenge 2040](#) to learn and participate in the wider movement to enable a transformation in the protein market.

If you are a school:

- Explore the [“Food for Change” toolkit](#) and try launching a pilot within your cafeteria. Consider which students and student groups might lead peer engagement

work and how you might tailor your engagement to meet the needs of your specific community of students, taking into account existing inequalities.

- Build connections with other key members of your school community that influence the environment for students from parents to teachers, school administrators and cafeteria workers.
- Link up with other School Nutrition Directors to collaborate with food manufacturers and send a collective demand signal.
- Share your favorite menu items and insights about what is working to increase plant-based consumption in your school with other school districts.

If you are an NGO:

- Explore new ways of supporting schools, communities and other organizations to empower young people to make healthy choices and support dietary shifts.
- Share your learnings with each other, other schools and key influencers, to evolve our collective efforts to be more impactful.
- Join collaborations such as the [Protein Challenge 2040](#) and advocate for the wider shifts needed to create a sustainable protein system, including the need to overcome policy barriers within and beyond the school food system.



A top-down view of a variety of healthy foods. In the top left, a bowl of chickpeas. In the top center, a bowl of orange lentils with a small piece of broccoli. To the right, several large green spinach leaves. In the bottom left, a block of white cheese on a wooden board with several broccoli florets. In the bottom center and right, there are walnuts, almonds, peanuts, and a wooden spoon filled with chia seeds. A few pinto beans are scattered in the bottom right corner.

CONCLUSION



As the recent zoonotic pandemic demonstrates, climate change can have far-reaching and devastating impacts. To prevent the worst effects of climate change, stem the biodiversity crisis, and improve human health, we must work to transform the way we produce and consume food. The protein system is at the heart of this challenge.

Given the urgency, scale and influence of the school food system in the U.S., we envisage a future in which school cafeterias are the best plant-based restaurants in town – seen as places that provide abundant, healthy, diverse and delicious plant based-options that play as of much a role in developing the next thriving generation of Americans as the classroom and the sports field. A future where students are agents of change and no longer hold anxiety about living within a climate catastrophe, but are equipped with the knowledge and tools to engage positively.

To achieve this future, we must look deeper into why things happen - shifting from the tip of the iceberg to the root of the challenge. In doing so, we can see how the structures that support healthy eating can be reset to help shift the way students interact with their food choices, and how powerful reframing our thinking about food can be.

We hope this approach to delving deeper into the causes of a challenge can be used by others to identify the factors that will support long-term transformation to sustainable, nutritious diets.

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Further information

Further information on transforming diets in schools is available at:

- [Food for Change Toolkit](#)
- Forward Food's compliant [Recipes and Resources](#)
- Chef Ann Foundation, [Plant Forward](#) recipes
- [Menus of Change](#)
- [Friends of the Earth, Climate-Friendly School Food](#)
- Meatless Mondays [K-12 toolkit](#) and [School food recipe book](#)
- [Lean and Green Kids](#)
- Coalition for Healthy School Foods [compliant recipes](#)
- [Future Plates: Transforming culinary skills and training](#)

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ABOUT THE PROTEIN CHALLENGE 2040

Accelerating action on sustainable protein

The Protein Challenge 2040 is a forward looking, international, multi-sector collaboration across industry and NGOs working to accelerate action on sustainable protein. It is facilitated by the international sustainability non-profit Forum for the Future, bringing over 20 years of expertise in running multi-stakeholder collaborations to solve complex sustainability problems.

In 2015, this international collaboration undertook an exhaustive diagnosis process to understand the key sustainability challenges that the food system faces around protein. Through this process, we identified six key levers of change. We then developed and tested collaborative responses to unlock barriers, prioritising those where interventions were perceived to have the greatest impact potential.

In Phase 2 of the collaboration, we focused on two of these priorities and developed pilots for each area. These are designed to test what it takes to shift the whole system: in practice, this means combining several solutions, working collaboratively and looking to the long-term.

Feed Compass collaboration: Sustainable animal feed

Addresses challenges associated with protein production, with a particular focus on how to scale up use of sustainable animal feed for fish and livestock.

Future Plates initiative: Rebalancing protein consumption

Seeks to reduce the total quantities of protein consumed in Europe and the U.S. in line with individual country dietary guidelines; improve the sustainability of the meat, fish and dairy that's consumed; and increase the proportion of non-animal protein in the average diet by 50%.

JOIN US

The window of opportunity for us to solve this huge challenge is rapidly closing. Get involved today and join our dynamic collaboration - The Protein Challenge 2040 - to benefit from being part of a network that shares collective expertise and influence on the future of sustainable protein.

Partners that have been involved in this phase of the Protein Challenge include:



To find out more about the Protein Challenge 2040 visit: <https://www.forumforthefuture.org/protein-challenge>

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