Good Food Institute

Trump Administration Recommendations

Building the agricultural bioeconomy: Investing in America's future

Contents

Dear President Trump,

As the CEO of the Good Food Institute, a nonpartisan 501(c)(3) organization dedicated to feeding a growing population using agricultural innovation, I urge you to seize the opportunity that food biomanufacturing innovation can play in the American bioeconomy. Food biomanufacturing is the process of making new food products using the crops, feedstocks, and technologies that have been around for centuries like fermentation, culturing, and crop selection.

Your winning campaign focused on key issues facing the country: the pressing needs to bring down food prices for consumers, return manufacturing jobs back to the United States, create new opportunities for our farmers, and deliver American scientific excellence for the 21st century. Food biomanufacturing is a groundbreaking new market that can make these goals a reality—especially with dedicated and wise leadership by the next presidential administration.

The emerging food biomanufacturing industry brings together three of America's greatest strengths: farmers who are the backbone of our agricultural tradition, entrepreneurs who create economic promise, and scientific innovators who help build a better future for our entire country. We now face new challenges; not only is America now a net-importer of agricultural products, but other countries also continue to exceed our public investments in food biomanufacturing like alternative proteins. We have the opportunity to utilize American-grown crops to create new markets that feed the world and generate profits for American farmers and businesses for generations to come. Your administration comes at a crucial time for the field of food and agriculture—perhaps most notably for food biomanufacturing.

To compete on the global scene, the United States will need a whole-of-government approach to advance innovation, agriculture, and biomanufacturing. This document contains specific, actionable recommendations for several executive branch agencies under your direction to invest in domestic manufacturing infrastructure, promote scientific excellence, and foster regional prosperity for small businesses and farmers alike.

In the weeks ahead, I would welcome the chance to meet with your team to discuss opportunities from and challenges facing this exciting new industry and the specific policy proposals laid out in this document that will restore American leadership in this sector.

Thank you,
Ilya Sheyman, CEO

Executive summary

Over the next four years, the United States must restore its leadership in biotechnology and biomanufacturing to bolster agricultural innovation—supporting farmers, workers, and small businesses in every corner of the country. Below are the specific actions that the next administration can take to activate American innovation.

The ***Department of Agriculture*** can create new opportunities for the country's farmers and agricultural producers. The agency can facilitate groundbreaking academic research by identifying food biomanufacturing as a research priority within NIFA, increasing funding for innovative products within ARS to $50 million annually, and establishing Sustainable Protein Centers of Excellence at higher learning institutions. The agency should elevate novel food biomanufacturing within education and extension programs and leverage loan and loan guarantee programs to build America's domestic biomanufacturing production capacity.

The ***Food and Drug Administration*** can ensure new food products get to market efficiently and promote public health and safety. The agency should ensure new products are labeled to provide clarity, reduce consumer confusion, and encourage innovation. The agency should also proactively engage early-stage food innovation companies and researchers.

The ***Office of Science and Technology Policy*** can play a leading role in developing the bioeconomy. The office should implement executive-level directives, including President Trump's 2019 Executive Order on biotechnology, to accelerate the research, development, workforce, and commercialization of American food and agriculture.

OSTP should implement recommendations of the "Catalyzing Across Sectors to Advance the Bioeconomy" initiative and increase much-needed interagency coordination within existing entities like the National Bioeconomy Board.

The ***Department of Energy*** can advance agricultural innovations, diversify and secure our protein supply, and enable U.S. agricultural excellence. The agency should support development and commercialization of innovative agricultural technologies by providing research and biomanufacturing grants and increasing applied research efforts at the National Laboratories.

The agency should also re-focus grants, loans, and loan guarantees for innovative uses of biological resources through programs like SBIR and STTR.

The ***National Science Foundation*** should increase alternative protein funding, including dedicated funding calls, in line with the consensus, nonpartisan CASA-Bio recommendations. The agency can also drive investment by facilitating public-private and international partnerships for new food sources, including bilateral research agreements.

The ***Department of Commerce*** can supercharge American economic growth by investing in food manufacturing. The agency should leverage the bipartisan Tech Hub and Manufacturing USA programs to support America's food and agriculture research, development, and manufacturing.

The ***Department of Defense*** can strengthen national security and fortify our food system by investing in food biomanufacturing. The agency should ramp up its food biomanufacturing investments under the DPA and the Distributed Industrial Base Consortium to commercial-scale levels, i.e., $250 million annually. The agency should also increase R&D funding for efficient, deployable, and essential food production at DARPA, DEVCOM, and BioMADE.

The ***State Department*** should expand foreign markets for American technologies like precision fermentation. The agency should elevate food biomanufacturing within food and agriculture policy through joint working groups with USDA and other stakeholders.

Introduction

The Trump-Vance Administration can continue President Trump's leadership on biotechnology and biomanufacturing—fulfilling his promise to support farmers, workers, and small businesses in every corner of the country.

Producing new food products using biomanufacturing can help the United States create the world's strongest bioeconomy. Our farmers are feeding the world with their crops, and innovation is opening doors for communities across the country. Biotechnology has the incredible potential to benefit everyday Americans, and there is no technology with more untapped potential than food biomanufacturing. These products use crops and feedstock from American farms in biotechnology processes like fermentation to produce the foods that people already eat and love.

Biomanufacturing-enabled food production can diversify protein sources—opening up new markets to benefit farmers and bring down costs for consumers now facing record-breaking prices at their grocery stores, all while generating millions of new jobs.

The United States is currently home to the world's leading companies and researchers in the food biomanufacturing sector. But a failure of leadership has resulted in serious challenges to America's dominance in this sector from abroad. A bold vision is needed to ensure that protein diversification and research and development can help drive American food innovation and economic growth in America's heartland.

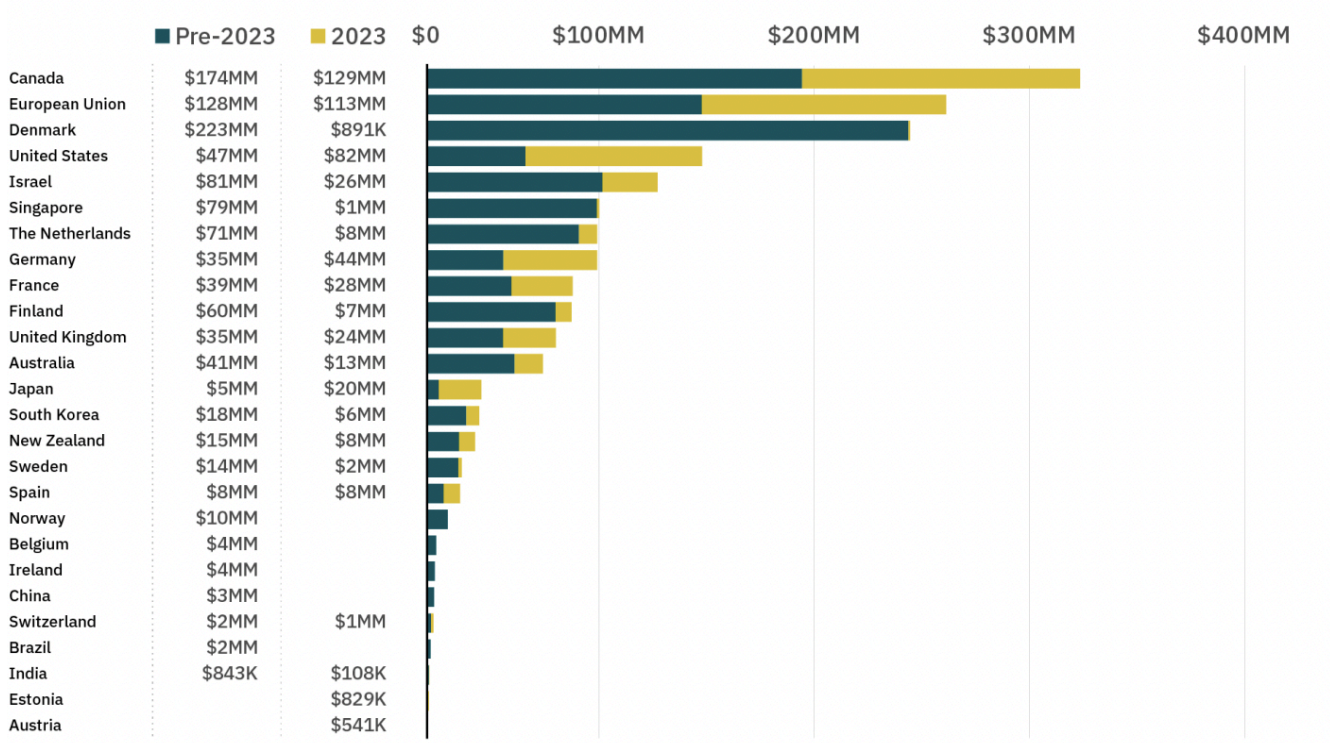
Bold action and investment are needed now to ensure America leads the global agricultural economy for decades to come.

The Trump-Vance Administration can secure U.S. leadership in the growing industry of biomanufacturing-enabled food production by fostering innovation, building domestic infrastructure, and improving our regulatory processes. The first Trump Administration marked countless milestones for agricultural innovation, biotechnology, and biomanufacturing. The past four years have not witnessed the level of growth or public support necessary for the scale of innovation that this emerging industry requires.

While the United States has long been the leader in agricultural research and biotechnology-enabled food production, other countries around the world are threatening to take the lead. Since 2020, governments in China, the European Union, Singapore, and Canada have catapulted their support for biotechnology, especially in the food space.

It is crucial that the next administration restore our leadership on the global scene by bolstering agricultural research, innovation, and jobs—most notably by investing in alternative proteins, just as the first Trump Administration did. Not only did President Trump's first administration create a level regulatory playing field for new products like alternative proteins, it made groundbreaking initial public investments at NASA, DOE, USDA, and other agencies.

Total and 2023 public funding of food biomanufacturing by government



**The European Union funds R&D and development grants independently of its member countries and is considered a separate funder in GFI Analysis.*

The Trump-Vance Administration should build upon President Trump's foundational work supporting farmers, workers, and small businesses in every corner of the country by promoting biotechnology, biomanufacturing, and alternative protein research.

Then-Secretary of Agriculture Sonny Perdue underscored the importance of innovation, diversification, and competitiveness for biotechnology and agriculture in regards to President Trump's bedrock 2019 Executive Order on Modernizing the Regulatory Framework for Agricultural Biotechnology Products:

"Our current regulatory framework has impeded innovation instead of facilitating it. We need all the tools in the toolbox to meet the challenge of feeding everyone now and into the future – if we do not put these safe biotechnology advances to work here at home, our competitors in other nations will."

Diversifying food production, especially protein production, will make the United States secure and competitive.

The private sector has ensured that the United States is currently at the forefront of this emerging industry—but without proper support that lead will vanish. While this nascent industry grows, your administration must protect against interference in the free market and protect Food Freedom—something the Biden-Harris Administration was often unable to do. Doing so will also accelerate public research, workforce development, and manufacturing infrastructure. If the United States lets other countries surpass us, we will not deliver the tremendous social and economic benefits of a thriving agriculture industry.

In the global race to develop new food technologies, the People's Republic of China has ramped up support for alternative proteins. Although China's total investment in the alternative protein sector is unknown, available evidence suggests that the industry has become a top priority. President Xi Jinping has publicly endorsed protein diversification as a key goal for innovation in China. China's first-ever five-year plan to boost the bioeconomy, published in 2022, called for exploring alternative protein technologies.

The Biden administration left the United States with an increasing agricultural trade deficit. As seen below, America's agricultural trade deficit is projected to increase in 2025. The Trump Administration must take bold steps to support American innovation and reverse this trend. Biomanufacturing-enabled food production can tap into new markets—like seafood—that return the United States back to our position as the world's agricultural leader.

Even more importantly, this opportunity to embrace market forces can bring down food prices for consumers—fulfilling a major promise of President Trump's winning 2024 campaign.

No plan to promote U.S. global leadership or strengthen the American bioeconomy is complete without food biomanufacturing. Increasing production of new food and agricultural products like alternative proteins will not only diversify America's agricultural system, it will provide new economic opportunities for American farmers, young workers, and struggling rural communities.

United States agricultural trade outlook

Year	August 2024	Projected August 2025
Exports	$173.50B	$169.50B
Imports	$204.00B	$212.00B
Balance	-$30.50B	-$42.5B

Spurring innovation to make America healthier, cleaner, and safer

Americans struggle to feed our families well: grocery store prices continue to rise and many foods on the market contribute to chronic disease. The Trump-Vance campaign has strongly re-focused the national attention on personal and public health. Many new foods like plant- and fungi-based meat are options that provide health benefits to consumers.

Switching to plant- or fungi-based meat can result in:

-9%
LDL cholesterol

+22%
fiber intake

-2 lbs
average weight

+100%
muscle growth rate among athletes

Likewise, smart food biomanufacturing can provide huge ancillary health benefits by preventing superbugs, reducing water pollution, and improving air quality. The routine use of antibiotics and antimicrobials—including in conventional meat production—has led to an increase in the frequency of antimicrobial-resistant strains. This rise in antimicrobial resistance (AMR) threatens to set America's health back decades to a time when a simple infection could be deadly. Your campaign repeatedly elevated the importance of biosecurity. The Center for Strategic and International Studies identified new food production as having significant benefits: "Alternative protein supply chains may be less susceptible to bioterrorist threats than those of the current animal agriculture sector."

These foods can reduce air pollution of particulate materials by 69–99 percent compared to similar foods conventionally produced. New production methods do not emit the same toxic air pollutants—including ammonia, particulate matter, and hydrogen sulfide—as conventional meat production. Similarly, because there is no animal waste to discharge and less fertilizer, these products reduce the discharge of nitrogen and phosphorus, which stimulate the growth of algal blooms that impair water quality in communities like those in Florida and the gulf.

> "Antibiotic sales data suggest that about 70% of medically important antibiotics are used for animal agriculture…so strategies for producing meat without antibiotics will be essential to meet the growing demand for protein."
>
> *– Nature Food*

American agricultural innovation

To restore America's role as the leader in food innovation, the following actions are essential.

- To ensure that U.S. researchers remain the best in the world, your new administration should invest in research excellence, including increasing support for research programs that have helped spur innovation.
- To reap the benefits of private innovation in the U.S. bioeconomy, your new administration should invest in domestic biomanufacturing capabilities.
- To create jobs and new economic opportunities, your new administration should prioritize workforce development alongside financial support for small businesses.
- To ensure America remains the home of Food Freedom, your new administration should reject attacks to censor or ban alternative proteins.

Below, the specific actions that the Trump-Vance Administration can take to activate innovation are outlined.

Department of Agriculture

USDA is the world's leading institution for driving agricultural innovation. The department has an essential role to play in preparing the country's farmers and agricultural workers for new opportunities, as it did under the leadership of Secretary Sonny Perdue. New technologies in protein production can build a sustainable, circular bioeconomy and create new uses for America's crop byproducts. The Trump Administration can support small businesses, invest in manufacturing infrastructure, support innovative R&D, and drive rural development by making America the global leader in food production for future generations.

Your administration will shape agricultural policy for decades to come. In the coming years, the Trump Administration will lead the passage of the next Farm Bill as several crucial USDA programs hang in the balance. It is critical that your administration prioritize innovation, academic excellence, and free markets for biomanufacturing-enabled food production when drafting and implementing the upcoming Farm Bill and other key food and agriculture policy initiatives.

Recommendations

Prioritize biomanufacturing-enabled food production as an area of interest within existing NIFA programs.

- To create new opportunities for America's farmers and small businesses, USDA should explicitly make "biomanufacturing-enabled food production" a research priority within existing NIFA Programs through targeted competitive grant programs.
- Leverage private investments by partnering with the Foundation for Food and Agricultural Research to achieve national food biomanufacturing priorities, connecting academic research with private sector entrepreneurs.
- Work with Congress to codify food biomanufacturing as a statutory research priority for relevant programs and signal to researchers opportunities for consistent, ongoing research funding.

Prioritize dedicated protein diversification funding within the Agricultural Research Service.

- Build on successes in blue-sky research conducted within the Agricultural Research Service, after a bipartisan congressional action first directed the agency to invest nearly $5 million into protein processing with increased investment of $1 million in FY 2023. ARS research centers across the country–from Louisiana to Illinois to North Carolina–have leveraged this funding to advance new research, including:
    - Improving variations and uses of soybeans and pulse crops
    - Utilizing genetic resources for protein diversification
    - Developing processes to maximize the production of cropping systems
    - Improving the nutritional and functional aspects of new food products to promote health
- Capitalize on this success by expanding this ARS initiative, improve coordination among researchers in various National Programs to prevent duplication and government waste, and support dedicated funding to these research endeavors.

Table 1: Current and future plant-based protein sources

Top crops used today for plant-based protein

soy	rice	peanut
pea	fava bean	sunflower
oat	lentil	quinoa
wheat	mung bean	potato
canola	chickpea	sorghum
almond	navy bean	mycoprotein
corn		

High-potential future protein sources

bambara bean	hemp	pennycress	sugarcane bagasse
beach pea	jackfruit	pigeon pea	tomato pomace
camelina	lima bean	pongamia	watermelon seed
cashew nut	mesquite bean	potato bean	wheat grass
chia	millet	pumpkin seed	yam bean
duckweed	mushrooms	sesame	yeast
dulse	mucuna bean	spirulina	
flax			

Case study: Taking a bite out of food waste with corn zein: Researching new uses for agricultural sidestreams in Indiana

Researchers at Purdue University are chewing on a tough problem—what to do with corn zein, a protein-rich byproduct of ethanol production? With support from the Foundation for Food and Agriculture (FFAR), the Plant Protein Enhancement Project is evaluating how zein, which has a tough, chewy quality, could be used to perfect the texture of plant-based meat products. An underutilized and abundant edible resource, corn zein could be just one of many byproducts that finds a new use in plant-based, fermented, or cultivated alternative proteins.

"Using a cheap, abundant ingredient to make [plant-based protein] products more attractive to consumers will increase incentives to grow high-protein plants as well as invest in further research to improve their nutritional value."

– Dr. Jeffrey Rosichan, director of FFAR's Crops of the Future Collaborative

Recognize American Centers of Excellence at higher learning institutions, creating world-class information hubs and a two–way information exchange between universities and the private sector.

- Prioritize the creation of research centers that focus on food and protein innovation. These Centers of Excellence will innovate new products and processes, train workers, and combine cutting-edge research with world-class workforce development.
- Support at least five of these Centers at universities across the country, giving special attention to universities in the heartland advancing rural development and new opportunities for farmers.
- Work with Congress to codify these research centers into law, identifying innovation and workforce development as primary purposes, while providing the funding necessary to achieve long-term success for American agriculture.

Support education and extension programs focused on training the next generation of food and agriculture workers with experience in novel food biomanufacturing.

- Capitalize on the tremendous potential to train the next generation of American workers for productive, high-paying jobs by elevating new food sources as a research priority.
- Cultivate opportunities to build a strong bioworkforce, supporting workers from farmers to food processors to researchers, across the country, including scholarships and education grants to train American workers on food biomanufacturing methods.

> "If [the United States doesn't] facilitate the invention of these ideas, we're going to see these technologies go to places around the world that are more conducive to their development, and frankly China may be one of those.
>
> We've got new technology. Shouldn't we in the United States be about how we can grow and feed people more efficiently and more effectively? [These] techniques need to be embraced, not kept out."
>
> **– Former Secretary of Agriculture Sonny Perdue**

Leverage loan and loan guarantee programs to build domestic food biomanufacturing production capacity to prevent off-shoring of commercial-scale manufacturing.

- Restore the United States as the leader in food and agricultural manufacturing, as it was under the Trump administration in 2020, by ensuring the following USDA loan programs can support new products, creating good manufacturing jobs in the heart of America:
    - B&I Loan Guarantee Program: Raise the guarantee cap from $25 to $100 million to effectively support the most promising innovative products investing in manufacturing and infrastructure.
    - Biorefinery, Renewable Chemical, and Biobased Manufacturing Assistance Program: Ensure this program explicitly includes biomanufactured foods like alternative proteins.
    - Food Supply Chain Guaranteed Loan Program: Work with Congress to reinstate this program and prioritize capital availability for food biomanufacturing activities.

Reject attacks on the free market or free speech that target innovative food products.

- Oppose any proposals that would disrupt the level playing field and interfere with the free market. Consumer choice, not the government, should determine which foods end up on dinner tables across the country.
- Protect small businesses and academic institutions by rejecting efforts to censor clear and effective labels, block R&D funding, or even ban entire segments of the economy. Recent years have seen multiple anti-free market proposals that would restrict new and innovative products. The Trump-Vance Administration must reject the intrusive food police in the years ahead.

> "This issue is far more than just about meat and plant-based alternatives. It's about allowing innovation in the food industry without the government hindering this innovation. It's also about allowing consumers to freely choose what products they want to buy without the government trying to steer consumers to buy one product over another."
>
> **– Daren Bakst, Competitive Enterprise Institute**

Food and Drug Administration

FDA is responsible for ensuring new foods get to market efficiently and that these products promote public health and safety. While innovators around the country are developing groundbreaking technologies that can diversify our food system and increase consumer choice, families must be able to trust that the foods they buy are safe and dependable. A Trump-Vance Administration can simultaneously promote private-sector innovation, improve health, and build public confidence.

Recommendations

Ensure innovative food companies can describe their products on labels in ways that reduce consumer confusion and promote a free and fair market.

- Afford small business alternative protein innovators the same path to market and product labeling considerations as other products, ensuring innovative companies can describe their products on labels in ways that reduce customer confusion. The first Trump Administration repeatedly prioritized consumer clarity and free speech—rejecting attempts to censor and overburden small businesses. Your administration should embrace this Food Freedom approach by rejecting attempts to overregulate small businesses trying to sell alternative protein products to consumers who want them.
- Allow compound names on food labels that reference traditional products (e.g., "milk" or "sausage") so that consumers clearly understand what they are purchasing. Empirical research indicates that referring to alternative proteins using types of foods consumers already know—accompanied by clear language like "plant-based" promotes optimal consumer understanding (e.g., "oat milk" or "plant-based sausage").
- The Good Food Institute submitted a Citizen Petition to FDA on this topic in March 2017 (FDA-2017-P-1298) and recommends that the agency grant the petition and codify its longstanding practice of allowing compound names on innovative food labels.

Proactively engage with early-stage food innovation companies and researchers to support American leadership in food safety and innovation.

- Engage with researchers and startups in the food innovation ecosystem to ensure the products they seek to bring to market align with the agency's commitment to a level regulatory playing field, consumer confidence, and public safety.
- Convene startups, researchers, and agency experts to promote food safety while streamlining regulation, manufacturing, and commercialization of innovative food products.

A review by the U.K. government found that antimicrobial resistance is a more certain risk to humanity than climate change.

Summary of plant-based meat environmental benefits.

Environmental Impact	Reduction for plant-based alternative, as compared to:		
	Beef	Pork	Chicken
Air pollution (fine particulate matter)	91%	91%	83%
Water pollution (marine eutrophication)	96%	90%	84%
Water consumption	93%	96%	94%

Executive Office of the President

A Trump-Vance administration should implement executive-level directives, including President Trump's 2019 Executive Order on biotechnology, to accelerate the research, development, workforce, and commercialization priorities identified by the nonpartisan CASA-Bio initiative, in order to build momentum in the U.S. bioeconomy and restore America's global competitiveness. While biotechnology is now recognized as an expanding and thriving industry, it has required the right balance of public support and regulatory clarity to grow. Under a Trump-Vance Administration, the Office of Science and Technology Policy can reignite these past efforts and further support domestic biomanufacturing.

Recommendations

Restore and enhance the Trump Administration's leadership promoting domestic biotechnology and advanced manufacturing.

- Elevate food biomanufacturing as a key priority in executive-branch level actions, ensuring the United States can remain the world leader in food and agricultural innovation.
- Continue implementing the 2019 Executive Order on Modernizing the Regulatory Framework for Agricultural Biotechnology Products—and build on these efforts with additional Executive-level directives to bolster domestic research, biomanufacturing, and workforce development.

Coordinate biotechnology R&D priorities across the executive branch to advance national interests, focus on science, and avoid duplication.

- Ensure that federal agencies are efficiently coordinating and collaborating to advance shared interests when it comes to food biomanufacturing. In recent years, federal agencies have increased the number of focus areas for research and development of biotechnology and biomanufacturing. The next OSTP will need to hone this focus and elevate food biomanufacturing as a key priority across the federal government without burdensome bureaucracy.
- Limit missed opportunities and grow the domestic industry faster with a whole-of-government approach to supporting food biomanufacturing research and development within bioworkforce, biomass, and bioeconomy initiatives.

Implement recommendations of the nonpartisan CASA-Bio initiative.

- Build on past interagency collaboration in developing priority R&D themes to advance America's bioeconomy with strong engagement from academic, philanthropic, and private sector stakeholders.
- Implement recommendations from the nonpartisan CASA-Bio initiative, which sets the stage for unprecedented levels of collaboration between government agencies and the private sector, to address challenges, catalyze the bioeconomy, and secure global leadership. The specific CASA-Bio findings are the byproduct of America's greatest biotech minds; the Trump-Vance Administration should take all necessary steps to implement the recommendations and vision to make the American bioeconomy the strongest in the world.

"Mars is millions and millions of kilometers away. And so to be able to produce your food locally, on site is a huge advantage."

– Zvika Tamari after his Israeli company Aleph Farms partnered with SpaceX to test cultivated meat on the International Space Station using 3D bioprinting technology.

Department of Energy

President Trump's vision for American energy involves an "all-of-the-above" approach to enable American leadership across a host of energy technologies. In line with this approach, the Department of Energy can play a similar role in advancing agricultural innovations that diversify and secure our protein supply and enable American agricultural excellence. China's government is investing in agricultural technologies like alternative proteins. We must ensure the U.S. remains a global leader in food and agriculture, feeding our population safe and nutritious food while creating good manufacturing jobs at home.

Recommendation

Support research and commercialization of innovative agricultural technologies.

- Drive the United States to global leadership in protein innovation by providing research and manufacturing grants.
- Increase applied research efforts and coordination regarding food biomanufacturing and innovation at the National Laboratories.
- Create new markets for America's biological resources, bringing economic opportunities to producers all across the country.

"China now rivals the United States in DNA-sequencing equipment and some foundational research. Beijing's large volume of genetic data potentially positions it to lead in precision medicine and agricultural biotechnology applications."

– Office of the National Director of Intelligence, 2024 Annual Threat Assessment

Department of Commerce

President Trump's vision for a second term includes turning the United States into a manufacturing superpower, preventing the off-shoring of manufacturing jobs by investing in manufacturing capacity here at home. The Department of Commerce can revitalize American excellence in food manufacturing by leveraging the bipartisan Tech Hub and Manufacturing USA programs to support innovation and workforce development in biotechnology-enabled food production.

Recommendations

Leverage the bipartisan Tech Hub program to support food and agricultural biomanufacturing research, development, and manufacturing.

- Restore U.S. leadership in critical manufacturing industries by investing in the bipartisan Tech Hubs program. These initiatives enable innovation, manufacturing, and workforce development and will ensure American leadership in industries critical to the 21st-century economy.
- Expand the program to designate new Tech Hubs with a focus on biotechnology-enabled agricultural innovation to fortify the U.S. food system and allow the United States to regain our rightful position as the agricultural leader of the world.

Release funding opportunities tailored to the food and agriculture innovation sector through programs like the Manufacturing USA Institutes.

- Increase the competitiveness of the Manufacturing USA program by designating additional Manufacturing USA Institutes focused on food biomanufacturing innovation and ensuring that existing Institutes are sufficiently resourced.
- Support food biomanufacturing activities to ensure that good jobs created through U.S. innovation stay in the United States.

> "This [industry] is a perfect fit for the Hoosier state given Indiana's strong agriculture and manufacturing sectors…We love to see innovative new technologies creating quality jobs and career pathways for both today's and tomorrow's workforce."
>
> – Governor Eric Holcombe (R-IN)

Department of Defense

President Trump is committed to strengthening and modernizing the U.S. military, making it the greatest in the world through unprecedented support of defense capabilities. President Trump has identified building a well-developed manufacturing and defense industrial base and resilient supply chains as a "significant national priority," and issued an Executive Order that identified the "availability of substitutes for or alternative sources for [essential] goods" as a key component. As President Trump's E.O. recognizes, food production capabilities can be fortified with biotechnological innovations including fermentation and cellular agriculture—and are an integral part of America's national security and our defense industrial base.

Recommendations

Prioritize funding and technical support for the Distributed Industrial Base Consortium and the Defense Production Act to bolster national security and increase domestic biomanufacturing capabilities.

- Expand U.S. food manufacturing capacity and build resilience into our food supplies by increasing commercial-scale investments, particularly via larger grants and follow-on funding for facility construction.
- Continue to diversify our domestic protein supply, strengthening our national security and U.S. competitiveness, by enabling the increased production of innovative protein products such as mycoprotein which offer functional, nutritional, and supply resilience advantages.

Develop efficient food technologies and deployable food production at DARPA, DEVCOM, and BioMADE.

- Continue DoD's long-standing leadership in food innovation and research by furthering research pursuits focused on biotechnology-enabled proteins at DARPA, DEVCOM, and BioMADE.
- Invest in biotechnology-enabled protein production capabilities to support military readiness, including point-of-need food production.

Prioritize infrastructure to support food biomanufacturing production in the implementation of the Office of Strategic Capital (OSC) loan program.

- Identify food biomanufacturing as a priority under the OSC program for loan opportunities, which will issue loans/loan guarantees for critical technologies to scale private capital for national security.

Case study: Innovation in central Texas: Creating new markets with duckweed

Plantible, a Texas-based startup, is using duckweed to create protein with a tiny footprint. Growing the duckweed is easy–all that is needed is shallow concrete pools, recycled water, and off-the-shelf greenhouses–so Plantible decided to scale up production on site in central Texas. Their high-quality RuBisCO protein matches animal protein functionality at a competitive price and a fraction of the footprint–so in water-parched Western states like Texas, it may be duckweed to the rescue.

"Low-tech is highly scalable and very affordable."

– Tony Martens Fekini, chief executive of Plantible

Case study: Embracing protein diversification to save the family farm in North Carolina

Contract hog producers face a slew of challenges; not only are they tasked with maintaining millions of gallons of liquid manure in lagoons, they're also often expected to take out sizable loans to afford the upfront expenses. The Butler family, longtime hog growers in North Carolina, are taking a new approach, retrofitting the facilities they built for hogs to grow oyster mushrooms instead–no lagoons necessary.

"[Because] we care about our neighbors, my brother and I took an oath to do whatever we could to lessen our impact."

– Tom Butler, co-owner of Butler Farms

Case study: Sugar, power, and people in Indiana

When Liberation Labs announced a new fermentation facility in Richmond, Indiana (IN-06), the company cited three reasons to choose the Midwest: high-quality energy, labor, and sugar–specifically, corn sugar. The facility, which received a $25 million loan guarantee from USDA, will use corn dextrose as a feedstock, supporting the state's corn farmers and processors.

"We believe our purpose-built biomanufacturing facility will fill the gap and help usher in a new era of advanced bioproducts that will make our lives better, including foods, materials and yet-to-be-discovered breakthroughs."

–Mark Warner, CEO of Liberation Labs

> “The rewards of investment in alternative protein research and development are clear: realizing a food system with greater ability to provide adequate nutrition for all while mitigating global threats and enhancing U.S. strategic competitiveness.”
>
> **– Center for Strategic and International Studies**

Department of State

The State Department implements America’s foreign policy and ensures that the United States is a global leader in influence abroad. The Trump-Vance Administration can advance these goals with a strong foreign policy focused on enhancing and supporting American agriculture and biomanufacturing. Expanding foreign markets for American goods and promoting the use of American biotechnologies–including new food production platforms–through international declarations and advocacy will ensure that America remains a leader in food production and future technologies.

Recommendations

Appoint staff who are committed to competing with America's adversaries on future technologies, including biotechnology and future foods.

- Protect America's leadership in agricultural innovation by investing in domestic research and production, building research and entrepreneurship relationships with our allies, monitoring foreign investment and interference in biotechnology for food production, and utilize America's diplomatic strength to push foreign markets to open up to U.S. exports, including biotechnology-derived products.

Nominate an ambassador to the United Nations Rome-based agencies who is pro-innovation, technology, and the future of food.

- Prioritize nominating an American representative who will leverage U.S. influence and financial support for the Rome-based agencies to push them to adopt stances supportive of American food biomanufacturing and new food products and technologies, including in aid abroad.
- Select an ambassador and staff who are committed to a trade policy that enhances U.S. exports of new products and technologies, enabling competition on biotechnology with America's adversaries.

National Science Foundation

The NSF is well positioned to support research innovation for food and agriculture, as well as partner with other agencies on key focus areas. In recent years the NSF joined a series of non-partisan workshops titled, "Catalyzing Across Sectors to Advance the Bioeconomy" (CASA-Bio) alongside several other executive branch agencies and key stakeholders. NSF should build on the workshops and empower program officers to ramp up support for alternative protein research while encouraging the creation of dedicated funding calls based on findings of the CASA-Bio workshops.

Recommendations

Support the implementation of the CASA-Bio recommendations.

- Prioritize the independent, non-partisan recommendations created during the CASA-Bio process and work with Congress and OMB to enact corresponding policies.
- Encourage directorates and program officers to consider food and protein innovation, including alternative protein research, as in-scope for solicitations whenever possible.
- BIO, ENG, and the foundation-wide infrastructure programs should consider where new food biomanufacturing technologies may fall in-scope.

Facilitate public-private and international partnerships for food biomanufacturing innovation.

- Encourage directorates and program officers to both utilize public-private partnership models to support food and agricultural innovation and form international partnership programs with countries, such as Israel, to support biotechnology and biomanufacturing, including alternative protein research.
- Convene additional partners at other Federal agencies, companies, and foreign governments to advance shared research priorities.

Recognize and fund research Centers of Excellence at higher learning institutions.

- Build on the success of bipartisan innovation proposals, and continue to invest in and grow the Regional Innovation Engine program.
- Continue to prioritize biotechnology as a critical technology in the Regional Innovation Engine program, with food biomanufacturing being an example of such a biotechnology.
- Hold additional rounds of the BioFoundries program and elevate food biomanufacturing as a potential area of interest for such BioFoundries.

Conclusion

We are currently facing an inflection point for food security, national security, and global competition. The Trump Administration has the opportunity to meet this moment and bolster United States leadership in food innovation for decades to come. As outlined in this document, your administration can take action to build a more secure world of food and agriculture by supporting scientific innovation, strengthening food system resilience, and promoting economic opportunities for farmers and small businesses around the country. Food biomanufacturing can play a key role in building a modern and strong bioeconomy.

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