# The Science Behind Organic

## Resource Guide

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SINCE 1985 Organic trade association

THE ORGANIC CENTER

## Why a data-driven communications toolkit for retailers on the benefits of organic is needed

- To educate retailers on the benefits and contributions of organic to sustaining the health of the planet, people and communities.
- To provide retailers with information that will help connect the dots between the benefits of organic to the planet, people, and business and how this, in turn, benefits retailers.
- To ensure the USDA organic certification is recognized as a gold standard within retailer sustainability and regenerative agriculture practice initiatives/programs.

## Introduction

This resource guide reflects a collection of attribute statements on the positive impacts of organic food, fiber and agriculture that are supported by a collection of existing government data, peer-reviewed studies, and other scientific literature. The intent is to synthesize the information into a reference guide that can be used to inform a data-driven Communications Toolkit for multiple audiences, including National Retailers.

**TOPLINE MESSAGE**

Whichever sustainability benefits are most important to your business, from reducing greenhouse gases to regenerating soil health, there's only one option that addresses the full suite of environmental and social concerns and is backed up by federal certification – USDA Organic.

*This resource is a collaboration between the Organic Trade Association (OTA) and The Organic Center. OTA is the leading voice for the organic trade in the United States, representing over 9,500 organic businesses across 50 states with the mission to promote and protect ORGANIC with a unifying voice that serves and engages its diverse members from farm to marketplace. The Organic Center is a 501(c)(3) non-profit research and education organization with the mission to conduct and convene credible, evidence-based science on the environmental and health effects of organic food and farming and communicate the findings to the public.*

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## BACKED BY THIRD-PARTY CERTIFICATION & FEDERAL LAW; DRIVEN BY CONSUMER DEMAND

# GOOD FOR THE PLANET

*By relying on ecosystem services to produce food and fiber, organic farms have a regenerative (rather than extractive) effect on the environment. Organic standards require that farmers protect the natural resources on their lands, which makes organic farms key players in the fight against the climate crisis.*

## Mitigating Climate Change – Organic Farming is the Original Climate-Smart Agriculture

### Organic Farmers are Focused on Healthy Soils – (7 CFR 205 Regulatory Citation)

- Organic farmers are required to implement tillage and cultivation practices that maintain or improve soil quality and minimize soil erosion. (205.203a)
- Organic farmers are required to manage crop nutrients and soil fertility through rotations, cover crops and animal materials. (205.203b)
- Organic by definition is an agricultural system managed to foster cycling of resources, promote ecological balance, and conserve biodiversity (205.2)
- No-till on organic farms reduces soil density in the top two layers by 25% and 14%, which reduces compaction and improves the properties that result in better water infiltration and nutrient availability. (REF)
- No-till on organic farms increases topsoil organic carbon by 76% through 3 years, 103% through 11 years. (REF)
- No-till organic farming significantly increases concentrations of soil carbon, nitrogen, phosphates, magnesium and potassium. (REF)

### Organic Crop and Livestock Production Sequester Carbon by Promoting Soil Health

- Organic soil has 13% higher total soil organic matter than conventional soil
- Organic soil has 44% more stable sequestered carbon than conventional soil
- Organic soil has up to 60% higher soil stability than conventional
- Organic roots have 40% more beneficial mycorrhizae fungus
- Organic soils host up over 3 times as many earth worms as conventional soils
- Water infiltration is almost 10 times greater than conventional soils, suggesting they are better able to thrive in drought and flood conditions.
- Organic farming methods build soil health and support soil's natural power to store carbon and help fight climate change.
- Carbon sequestration rates are higher in organic farming systems than conventional, improving over the first ten years of organic conversion. (REF)

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## Mitigating Climate Change – Organic Farming is the Original Climate-Smart Agriculture

### Organic Farming Practices Use Less Energy

- Organic production uses 45% less energy than conventional. (REF: Rodale Farming Systems Trial)
- Conventional systems emit nearly 40% more greenhouse gases (GHG) per pound of crop produced than organic systems. (REF: Rodale Farming Systems Trial)

### Organic Farms Reduce Emissions

- Organic farms use around 50% less new reactive nitrogen, a potent greenhouse gas.
- Organic production greatly reduces nitrogen oxide emissions by prohibiting the use of almost all synthetic inputs and requiring careful nutrient management that reduces overuse of fertilizers (7 CFR §§ 205.105,205.203)
- Organic farming systems emit about 40% less N2O than conventional production does. (REF) The decrease can be attributed to the restricted use of synthetic chemical inputs as well as the focus on building healthy, living soils.
- Substituting synthetic fertilizer with organic increases pineapple yield by 26.3% while reducing emissions by 26.2%. (REF) (TOC Summary)
- Organic dairy farms produce 19% less on-farm emissions per unit of milk, 11% less accounting differences in production. (REF)
- Nitrogen fertilizers, which are prohibited from organic farming, are responsible for 17-28% of greenhouse gas emissions associated with maize cultivation. (REF)
- Organic systems release 40% less nitrous oxide. (REF)

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## Organic Protects the Environment – General

### Organic Farming Protects Natural Resources – (7 CFR 205 Regulatory Citation)

- The organic regulations require producers to maintain or improve the natural resources of an operation, including soil and water quality (7 CFR 205.200)
- Organic crop and livestock production must maintain soil quality and avoid contamination of natural resources by fertilizers and other inputs. (205.203)

### Organic Farming Reduces Soil Erosion

- Organic farming reduces soil erosion when compared to conventional farming systems. (REF)

### Organic Farming Reduces Water Contamination by Agricultural Inputs

- Using organic soil amendments reduces heavy metal concentrations in crops grown in contaminated soil. (TOC Summary REF)

### Organic Soils Conserve Water Resources

- Organic farming releases 50% less nitrates into the groundwater.

### Organic Farming Practices Increase Biodiversity on Agricultural Land (7 CFR 205)

- Organic farming increases biodiversity by 30%.
- Organic farming increases the amount and diversity (by 1.5 times) of beneficial soil fungi (AMF) in soils beneath a range of crops including pomegranates, grapes, mangoes, lemons and limes. (TOC Summary REF)
- Diversity of important frog species is enhanced by organic production in rice fields. (TOC Summary REF)
- Soil analyses indicate that both the number of bacteria and diversity of bacteria types are significantly higher under organic cacao management. The same is true for abundance and diversity of fungi. (TOC Summary REF)
- Organic shade-grown coffee supports bird communities better than conventional monoculture coffee plantations. (TOC Summary REF)
- Organic farming supports biodiversity that directly reduces food safety risks. (TOC Summary REF)
- Insecticides used in non-organic agriculture are linked to an 8% decline in Midwest butterfly abundance and diversity from 1998 to 2014, including a 33% drop for monarch butterfly population specifically. (REF)

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## Organic Protects the Environment – General

### Organic Farming Practices Increase Biodiversity on Agricultural Land (7 CFR 205)

- The use of neonicotinoid-treated seeds is strongly associated with the reduction of butterfly species diversity and neonicotinoid use has significant negative impacts on monarch populations specifically (REF)
- Pesticide pollution in streams can cause 42% lower species richness and 70% lower family richness of local fauna. (REF)

### Organic Farming Reduces Pests and Pesticide Use

- Organic farming promotes overall pest control by supporting beneficial predators and reduces the need for synthetic pesticides. (REF)
- Organic farms host more diverse bird populations, including insectivorous birds that can eat insect pests. (REF)

### Organic Farms Protect Pollinators and Beneficial Organisms

- Organic farming supports 50% higher pollinator diversity. (REF)
- Organic farms can support beneficial insects when natural habitat is limited in the landscape. (TOC Summary REF)
- Genetics of honeybees that are organically managed indicate less environmental stress and higher immunity than bees from conventional hives. (TOC Summary REF)
- Bumblebees are at risk of acute pesticide toxicity, up to 49%, after two days of feeding on sprayed plants. (REF)
- An increase in organic crop area from 5% to 20% increases bumblebee density by 150%. (REF)
- Fertilizers used in conventional farming disrupt electric fields emitted by flowers, reducing pollinator landing success by 60%. (REF) (TOC Summary)
- Bats pass over organic farms 3 times more often. (REF) (TOC Summary)
- Birds on organic farms are more active, displaying more distress calls, pecks and 80% more flee attempts when captured. (REF) (TOC Summary REF)
- Predators in organic systems can reduce aphids and blowfly populations by up to 50%. (REF)
- Organic farming results in more diverse and abundant spider and worm communities. (REF)
- Organic transition significantly increases important soil insects in tropical sugarcane by 234%. (TOC Summary REF)
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## Organic Protects the Environment – General

### Organic Farms Protect Pollinators and Beneficial Organisms

- Organic soil fungal communities are 17% richer, with higher diversity indices. (REF)
- Organic soils commonly host beneficial Tremellomycetes fungi, which promote growth and deter pathogens. (REF)
- Oomycetes communities in conventional soils are primarily pathogenic, while organic soils largely host beneficial and neutral oomycetes. (REF)
- Organic farming boosts soil microbiome diversity, increasing pathogen-suppressing Acidobacteria populations. (REF) (TOC Summary REF)
- Disease severity is over 60% lower in wheat infected by fungi pathogens when grown in organic soil. (REF) (TOC Summary)

## Organic Increases the Resiliency of Agricultural Systems

### Organic Agriculture Can Ensure Food Security Under Extreme Weather Conditions

- Under severe drought conditions, which are expected to increase with climate change in many areas, organically managed farms have frequently been shown to produce higher yields than their conventional counterparts.
    - Organic production yields up to 40% more than conventional systems in times of drought. (Rodale)
    - Water infiltration is almost 10 times greater than conventional soils, suggesting they are better able to thrive in drought and flood conditions.
- Although yields may be lower in the short-term (during transition), organic can equal or exceed conventional yields over the long-term and has better yield stability during extreme weather events.
    - Organic becomes competitive with conventional yields after about 5 years of organic management while soils recover from chemical-intensive agriculture. (Rodale)
    - Long-term studies consistently show that organic can compete and out-perform conventional.
        - Corn and soy: Organic yields equal or exceed (up to 2X) conventional yields. (Rodale)
        - Grain Crops: Organic yields equal conventional yields. (Delate 2015)
        - Carrots: Organic yields equal conventional yields. (Bender 2012)

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## Organic Increases the Resiliency of Agricultural Systems

### Organic Yields Must be Considered Alongside Ecosystem Services, Land Use Efficiency and Human Health

- Yields aren't the only measure of success. (Profitability, Human Health, Ecosystem Services)
    - The price premium for organic crops often offsets yield gaps. (Crowder 2015)
- Yields aren't the most important part of addressing food insecurity (Poverty, Food Waste)
    - Scarcity is not the problem; the world produces and over abundance of food with around 40% of it wasted. (Gunders 2012; Holt-Giménez 2012)
    - Long-term food security is also about food quality (safe and nutritious), environmental impact (non-polluting and good for biodiversity), economic viability (profitable for the farmer), and social well-being (farm worker safety and fair wages)
- Conventional yields are high because there is so much more investment in research and development. Organic has had a fraction of the investment compared to conventional agriculture.
    - 95% of crop varieties are bred for high-input conventional systems (Seufert 2017

# GOOD FOR PEOPLE

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## Organic Protects and Supports Public Health

### Organic Agriculture Reduces Environmental Exposure to Synthetic Pesticides

- Organic agriculture protects nearby rural and urban communities from exposure to synthetic pesticides that may persist in the air, water, and soil. (REF)
- Farmers have more glyphosate in their urine than people from urban areas. (TOC Summary REF)
- Occupational exposure to non-organic, confined animal operations increases antibiotic resistant bacteria in guts of workers. (TOC Summary REF)
- Pesticide exposure in conventional banana farming increases risk of cancer more than two-fold for farmers, farmworkers in Ecuador. (TOC Summary REF)
- Pesticide residues have been found in 54.4% of US wells and springs. (REF)
- Patients who live near pesticide application sites experience accelerated Parkinson's development. (REF)
- In Italy, pesticide residues are found at 58% of public sites, exceeding maximum residue limits at 46% of locations. (REF)

### Organic Agriculture Plays an Important Role in Protecting Children from Harmful Exposures to Pesticides

- Four times more glyphosate is detected in children than adults. (TOC Summary REF)
- Children under the age of 16 have been found to have 2-3 times more glyphosate in their urine than adults and elderly. (TOC Summary REF)
- Higher cognitive function is linked to eating organic food as a child. (TOC Summary REF)
- Prenatal exposure to glyphosate in pregnant women is linked to endocrine disruption in unborn girls, indicated by increased anogenital distance in infants, which is associated with developmental malformations, interference with reproduction, increased cancer risk; and disturbances in the immune and nervous system function. (TOC Summary REF)
- Risk assessment finds behavioral health impacts on children who consume synthetic food dyes. (TOC Summary REF)
- Prenatal and infant exposure to pesticides consistently correlated with higher risk of autism in children. The strongest correlations were with exposure to chlorpyrifos, diazinon, and avermectin. (TOC Summary REF)
- Higher childhood glyphosate-related compound concentration is linked with higher blood pressure, glucose and fat concentrations, and larger waists. (REF) (TOC Summary)
- Children who live near locations with heavy glyphosate application are more likely to develop metabolic disorders. (REF) (TOC Summary)
- A ten-fold increase in pesticide/pesticide metabolite concentration is linked to a 2.53x risk of respiratory illness in children. (REF)

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## Organic Protects and Supports Public Health

### Organic Agriculture Prevents Dietary Exposure to Synthetic Pesticides

- Conventional crops are four times more likely to have pesticide residues than organic crops. (REF)
- > 90% of the U.S. population has detectable concentration of pesticides in their urine or blood samples. (REF)
- Residues in conventional produce are 55 times higher in vegetables and 115 times higher in fruits. (REF 1; TOC Summary)
- Organic diets reduce glyphosate in the peoples' bodies by an average of 70%. (REF)
- Organic diets can reduce pesticide levels in people's bodies by up to 95% in just 6 days. (REF)
- Organic diet interventions show a significant drop of pesticides urinary levels after only a week. (REF 1; TOC summary)
- A nationwide study of adult consumers found that those eating the least amount of organic produce had up to twice the amount of pesticide levels in their urine as those who ate organic the most frequently. (REF)
- In France, people who consumed 85%+ of organic foods had less glyphosate in their bodies. (TOC Summary; REF)
- Eating organic produce significantly reduces pyrethroid pesticide exposure during pregnancy. (REF)

### Organic Dairy and Meat Prevent Exposure to Antibiotics and Hormones

- Antibiotic residues were detected in 60% of conventional milk samples. 37% of the samples tested positive for sulfamethazine, and 26% for sulfathiazole, both of which have long been outlawed in lactating dairy cows. One of the samples contained residue of amoxicillin that exceeded the federally allowed limit. (TOC Summary; REF)
- Bovine growth hormone (bGH) residue levels were found to be 20 times higher in conventional milk than organic. (TOC Summary; REF)
- Pesticide residues of chlorpyrifos, atrazine, permethrin and more were found in 26 percent to 60 percent of the conventional (milk) samples, with residues of the controversial and restricted-use pesticide chlorpyrifos in 59% of the conventional samples. (TOC Summary; REF)
- A study of 40,000 samples of chicken, beef, turkey and pork from grocery stores found significantly less contamination of antibiotic-resistant bacteria in organic versus conventional meat. (TOC Summary; REF)
- When comparing poultry production under conventional, antibiotic-free, and organic management, antibiotic resistance was highest under conventional management and lowest under organic. Conventional production had the most E. coli strains resistant to ampicillin (89.6%), cefotaxime (43.7%), nalidixic acid (57.8%), ciprofloxacin (44.4%), and trimethoprim/sulfamethoxazole (62.2%). (TOC Summary, REF)

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## Organic Protects and Supports Public Health

### Organic Farming Prohibits GMOs, Antibiotics, Most Synthetic Pesticides and Hormones

- Organic farmers have restricted access to 27 synthetic active pest control products while over 900 are registered for use in conventional farming. (OTA reference)
- Organic ranchers have restricted access to 37 synthetic livestock health treatments, while over 550 synthetic active ingredients are approved in conventional animal drug products. (OTA reference)

### Organic Processing Prohibits GMOs, Synthetic Flavors, Colors and Artificial Preservatives

- Over 3,000 food processing aids and additives are authorized in conventional products while only 100 are authorized under the organic label. (REF)
- Organic processed food may only include approved processing aids and additives.
- Organic packaged foods have fewer ingredients associated with negative health outcomes than non-organic packaged foods. (TOC Summary; REF)

### Organic Food Stays Fresh Longer

- After 6 days of storage, organic chicken breasts contain 45% fewer compounds associated with spoilage and stench. (REF)
- Organic chicken breasts contain less bacteria than conventional throughout storage. (REF)

## Organic Food is Highly Nutritious

### Organic Fruits and Vegetables Are Higher in Specific Nutrients

- Organic has up to 69% higher antioxidants. (REF)
- Organic apples have 66% more flavonols and 31% more phenolic acid–two antioxidant compounds. (REF)
- Organic oranges have 10% more vitamin C. (REF)

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## Organic Food is Highly Nutritious

### Organic Meat and Dairy Have Superior Fatty Acid Profiles

- Organic milk has 56% higher healthy omega-3 fatty acid levels than conventional milk. In addition to higher levels of omega-3 fatty acids, this study found that organic dairy provides several other health benefits such as higher levels of heart-healthy conjugated linoleic acid (CLA), iron, vitamin E, and carotenoids, all of which are associated with health benefits. (REF)
- Organic beef has 17% less cholesterol, 32% less fat depending on the beef cut, 16% fewer fatty acids, and 24% fewer monounsaturated fatty acids than its conventional counterpart. (REF)
- Organic beef in the EU can have higher antioxidant levels, with 34% more Q10 and 72% more taurine depending upon the beef cut, and 53% more β-carotene than conventional beef. Organic beef was especially beneficial when it came to heart-healthy α-linolenic acid, with 170% higher levels than non-organic beef. Finally, the researchers found that organic beef had 24% more α- tocopherol, which is a type of Vitamin E. (REF)
- Organic meat contains 47% higher levels of omega-3 fatty acids than conventional meat. (REF)
- Organic eggs contain 52.8 more kcal per egg, in addition to extra potassium, calcium and zinc. (REF)

### Organic Has Lower Levels of Heavy Metals

- Organic has 48% lower levels of cadmium. (REF)

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## Organic Provides Better Living and Working Conditions for Farmworkers

### Organic Agriculture Protects Farmworkers from Routine Exposure to Synthetic Pesticides

- Occupational exposure to pesticides is linked with multiple diseases and mental health issues. (TOC REF)
- Farmers who occupationally apply pesticides display 28% less BChE, a chemical that maintains normal nerve functioning. (REF)
- Farmworkers who use pesticides are more likely to develop asthma, chronic bronchitis and rhinitis. (REF)
- Occupational exposure to pesticides is linked to the development of Parkinson's Disease, ALS, leukemia, and reproductive disorders. (REF)

## Organic Provides a Secure and Sustainable Food System

### Organic Agriculture Can Sustainably Feed a Growing Worldwide Population

- Soil health increases organic yields and shrinks the yield gap.
    - The USDA Organic standards require producers to maintain and improve soil health (7 CFR 205).
    - Soil quality is a main driver of yields in organic systems. (Ponisio 2015)
    - Yield gaps between organic and conventional are highly dependent on the crop type, maturity of the organic system, on-farm soil management practices, and investments in research and development. (Ponisio 2015; Seufert 2017)
    - The application of organic management practices that improve soil health (such as multi- cropping and crop rotations) have reduced the yield gap to less than 10% for many crops. (Ponisio 2015)
- Yield gaps are shrinking as organic systems are better understood and researched (UC Berkley meta-analysis). REF
    - Organic farms at 10-13 years have similar yields to non-organic indicating that the yield gap shrinks over time. TOC Summary; REF
- Organic becomes competitive with conventional yields after about 5 years of organic management while soils recover from chemical-intensive agriculture. (Rodale)
- Long-term studies are showing that organic can have similar or better yields than conventional (Rodale, Iowa State/Delate).
- Even with lower yields, organic provides more benefits across environmental impact, human health, economic viability (WSU study)
    - Organic farms touted 34% more biodiversity and 50% more profitability than conventional farms despite having 18% lower yields. (TOC summary; REF)

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## Organic Provides a Secure and Sustainable Food System

### Organic Is a Better Solution for Long-Term Food Security

- Even with lower yields, organic provides more benefits across environmental impact, human health, economic viability. (Reganold 2016; Pimentel 2005)
- Global conversion to organic agriculture combined with reducing livestock feed from arable land, and substantial cuts in food waste, could help feed the world more sustainably in the future. (Muller 2017; TOC Summary)
- Taking a holistic view of our food system, conventional farming isn't a viable option for long-term food security because it contributes to negative environmental externalities that will make it
    - TOC Response 2015
    - TOC Response 2018

# GOOD FOR THE ECONOMY

*The thriving organic marketplace creates business opportunities for farmers and food and fiber manufacturers as well as the next generation of American farmers. Data shows that the organic sector creates jobs, contributes to local economic development, and reduces poverty rates while raising median household incomes.*

## One of the Fastest Growing Sectors in U.S. Agriculture

- Organic sales reached $62 billion in 2020, 12.4% growth over 2019. (Organic Trade Association, Organic Industry Survey, 2021)
- There are more than 28,000 certified organic farms and businesses across the country. (REF)
  Organic food is found in the kitchens of over 82% of U.S. households. (Nielsen, 2016)
- The majority of organic sales occur through mainstream grocery outlets like Costco, Walmart, and Safeway. (REF)
- Millennials, some 73 million strong, represent the largest adult generation in the United States and a growing market for organic food. (REF)
- USDA has committed $200M to support farms transitioning to organic. (REF)

## Organic Agriculture Creates Jobs & Opportunities

- The number of organic farms grew by 39%, while the total number of farms in the U.S. shrank by 3% between 2012 and 2017 (REF)
- Since the first NASS organic survey in 2008, the number of organic farms, the acres used for organic production, and the value of organic products sold have increased, with value of sales more than tripling between 2008 and 2019. (REF)

## Organic Farming and Processing Stimulates Local Economies

- 225 counties are "organic hotspots": clusters of counties with a high level of organic activities that correlate high labor force participation and better median household income, unemployment rates, and poverty rates. (OTA Reference)

## Organic Farms and Businesses are More Profitable

- Organic farms are 35% more profitable than the average farm, and has higher benefit/cost ratios (20 to 24%). (REF)
- Organic farms are significantly more profitable for farmers, obtaining 22-35% greater net present value when compared to conventional farms. (REF)
- Over 70% of organic farmers have gross sales of less than $250,000 (USDA National Agricultural Statistic Service. 2019 Organic Survey; 2017 Census of Agriculture Special Study).
- Income for organic farmers has nearly doubled over the past five years
- Even when yields are lower, organic farms have 50% higher profitability than conventional farms. (REF)
- Organic farms produce 53% more profit per unit of milk produced than conventional. (REF)
- Across the world, organic farms are more profitable than conventional. (REF)
- Organic farms tout 50% more profitability than conventional farms despite having 18% lower yields TOC Summary. (REF)

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## Organic Agriculture Reduces Poverty Rates

- Clusters of organic businesses reduce poverty by 1.3 percentage points. (REF)

## Organic Supports the Next Generation of American Farmers

- Proportionally, more new and beginning farmers, farmers who have been the principal operators of their farms for ten years or less (REF), are starting organic farms than are starting conventional farms. (REF)
- Younger farmers gravitate to organic—the average age of organic farmers is six years younger than that of the national average of all farmers (USDA National Agricultural Statistic Service. Census of Agriculture: 2012 and 2017).

## Organic Supports Social Benefits for Farmers

- Organic agriculture can provide other livelihood benefits, especially for farmers in low-income countries, such as the organization of farmers in cooperatives, building of social networks, integration of traditional knowledge, providing training, and access to health and credit programs through the certifying and exporting agency. (REF)
- Organic agriculture provides multiple ecosystem functions and services at greater economic benefit to farmers than conventional, chemical-intensive cropping systems. (REF)
- Organic farmers report feeling happier and more connected to the land. (REF)

# BACKED BY THIRD-PARTY CERTIFICATION AND FEDERAL LAW

*Unlike other eco-labels like "natural" or "regenerative," the USDA Organic label is backed by 3rd party inspection, federally enforced, and provides traceability from the farm to the consumer.*

Any agricultural product sold, labeled, or advertised as organic in the United States must be produced in compliance with the federal Organic Foods Production Act of 1990 and the U.S. Department of Agriculture (USDA) National Organic Program (NOP).

- Organic operations must submit an organic system plan annually to their certifier for review and approval. (7 CFR 205)
- All field operations and materials applied must be recorded and all products must be traceable back to the fields in which they were grown. (7 CFR 205)
- Every certified operation is inspected at least once every year. (7 CFR 205)

## Top Priorities for Consumers Coincide with Many Elements of the Organic Standards

- Americans have many of the same concerns that are core values addressed by the USDA Organic standards. (REF)
    - A majority of consumers report that organic is the label that best embodies their values. (REF)
    - When surveyed about their top concerns in the food and beverage industry, most consumer priorities were addressed by the organic standard. For example, 70% expressed concerns over the use of synthetic chemicals and GMOs, which are prohibited in organic products. (REF)
    - Recent surveys show that a majority of Americans believe that organic products are better for the planet, healthier for people and animals, and more ethically produced than conventional. (REF)
    - About a quarter of US adults who purchase organic foods do so in order to support the environmental benefits of organic agriculture – they believe organic foods are better for the environment. (REF)
- 94.5% of consumers value farmland ecosystems and are willing to pay for their preservation by purchasing organic goods. (REF)
- Consumers are willing to pay a 30% premium on organic goods, due to perceived health benefits. (REF)
- 59% of consumers are willing to pay more, including buying organic, to protect animal welfare. (REF)

# ADDITIONAL REFERENCES BY CATEGORY/TOPIC

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