

The Science Behind Organic

Resource Guide

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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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GOOD FOR THE PLANET

By using an integrated system to produce food and fiber, organic farmers have a significant impact that extends far beyond the farm. Organic standards require that farmers protect the natural resources on their lands, which makes organic farms an integral part of the fight against the climate crisis.

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

Organic Farmers are Focused on Healthy Soils - USDA 2019 Regulatory Guidance

- 1. Organic farmers use practices to maintain high soil carbon levels, the number one method to reduce greenhouse gas emissions (USDA)
- 2. Organic farmers use practices to manage crop residues and soil health through rotation and cover crops (USDA)
- 3. Organic farmers use practices to improve water quality and reduce soil erosion through cover crops and reduced tillage (USDA)

Organic Crop and Livestock Production Requires Carbon by Promoting Soil Health

- 1. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 2. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 3. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 4. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 5. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 6. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 7. Organic crop and livestock production requires carbon by promoting soil health (USDA)
- 8. Organic crop and livestock production requires carbon by promoting soil health (USDA)

Organic Farming Practices Use Less Energy

- 1. Organic production uses 20% less energy than conventional (USDA 2019 Regulatory Guidance)
- 2. Conventional systems use 20% more pesticides than organic (USDA 2019 Regulatory Guidance)

Organic Farms Reduce Pesticides

- 1. Organic farms use 95% fewer pesticides than conventional (USDA 2019 Regulatory Guidance)
- 2. Organic production greatly reduces the risk of contamination by avoiding the use of synthetic pesticides and relying on natural pest management (USDA 2019 Regulatory Guidance)
- 3. Organic farming systems use 20% less synthetic pesticides than conventional production (USDA 2019 Regulatory Guidance)

GOOD FOR THE PLANET

By using an integrated system of practices that are often organic, farmers have a significant impact that extends often to the environment. Organic standards require that farmers protect the natural resources on their land, which makes organic farms an integral part of the fight against the climate crisis.

Organic Practices that Conserve Soil

Organic Farming Practices Natural Resources - (2 CFR 205 Regulatory 205.102)

(205.102)

- 1. The organic regulations require producers to maintain or improve the natural resources of the operation, including soil and water, under (205.102-2)(a)
- 2. Organic crop and livestock producers must maintain soil quality and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)

Organic Farming Reduces Soil Erosion

- 1. Organic farming reduces soil erosion when compared to conventional farming systems (205.102-2)(a)

Organic Farming Reduces Water Contamination by Agricultural Inputs

- 1. Organic crop and livestock producers must maintain soil quality and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)

Organic Soil Conserves Water Resources

- 1. Organic farming reduces soil erosion when compared to conventional farming systems (205.102-2)(a)

Organic Farming Practices Increase Resilience to Agricultural Losses (205.102)

(205.102)

- 1. Organic crop and livestock producers (205.102-2)(a)
- 2. Organic farming practices that protect and improve soil quality, conserve water, and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)
- 3. Organic crop and livestock producers must maintain soil quality and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)
- 4. Organic crop and livestock producers must maintain soil quality and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)
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- 8. Organic crop and livestock producers must maintain soil quality and avoid contamination of natural resources by herbicides and other toxic substances (205.102-2)(b)

Organic Farming Reduces Pesticide Use

- 1. Organic farming practices must avoid or minimize the use of synthetic pesticides and other toxic substances (205.102-2)(b)

GOOD FOR THE PLANET

By using an integrated system to produce food and fiber, organic farms have a reputation for being more sustainable than conventional agriculture. Organic standards require that farmers protect the natural resources on their farms, which makes organic farms an option in the fight against the climate crisis.

Organic Protects the Environment - General

Organic Farms Reduce Pesticides and Synthetic Fertilizers

- 1 Organic farms restrict synthetic pesticides to 28% of the total amount used.
- 2 Organic farms use significantly less synthetic fertilizer and insecticides than conventional farms.
- 3 Organic farms use significantly less synthetic fertilizer and insecticides than conventional farms.
- 4 Organic farms use significantly less synthetic fertilizer and insecticides than conventional farms.

Organic Increases the Resilience of Agricultural Systems

Organic Agriculture Can Reduce Food Security Under Extreme Weather Conditions

- 1 Organic farms produce yields up to 20% more than conventional systems in times of drought.
 - 2 Organic farms produce yields up to 20% more than conventional systems in times of drought.
 - 3 Organic farms produce yields up to 20% more than conventional systems in times of drought.
- 4 Although yields may be lower in the short term during moderate drought, organic soil health and water retention can be significant over the long term and in severe drought conditions.
 - 5 Organic farms produce yields up to 20% more than conventional systems in times of drought.
 - 6 Organic farms produce yields up to 20% more than conventional systems in times of drought.
 - 7 Organic farms produce yields up to 20% more than conventional systems in times of drought.

GOOD FOR THE PLANET

By using an integrated system to produce food and fiber, organic farms have a significant impact that extends far beyond the environment. Organic standards require that farmers protect the natural resources on their land, which makes organic farms the champions in the fight against the climate crisis.

Organic Increases the Resilience of Agricultural Systems

Organic fields must be considered alongside ecosystem services, land use efficiency and human health.

- 1. Organic farms are the only means of success. Profitability, human health, ecosystem services, and efficiency are all affected by the organic process. (OTA, 2019)
- 2. Organic farms are the most important part of addressing food insecurity, poverty, food waste, and food loss. (OTA, 2019)
- 3. Organic farms are the most important part of addressing food insecurity, poverty, food waste, and food loss. (OTA, 2019)
- 4. Organic farms are the most important part of addressing food insecurity, poverty, food waste, and food loss. (OTA, 2019)
- 5. Organic farms are the most important part of addressing food insecurity, poverty, food waste, and food loss. (OTA, 2019)

GOOD FOR PEOPLE

Organic is the only label that means that only certified organic products are used in the production of food and personal care products. Organic products are healthier, safer, and better for the environment.

Organic Products and Support Public Health

Organic Agriculture Reduces Environmental Exposure to Synthetic Pesticides

- 1. Organic agriculture products contain fewer and safer pesticides than conventional products. (OTA, 2014)
- 2. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
- 3. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
- 4. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)

Organic Agriculture Plays an Important Role in Protecting Children

From Birth to Toddler Exposure to Pesticides

- 1. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
- 2. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
- 3. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
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- 7. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)
- 8. Organic products are grown in soil that is rich in nutrients. (OTA, 2014)

GOOD FOR PEOPLE

Organic is the only label that is backed by a federal law that says to use 100% and prohibits artificial flavors, preservatives, chemical preservatives, or additives.

Organic Products and Supports Public Health

Organic Agriculture Promotes Healthy Diets and Supports Nutrition

- 1. Conventional crops are less nutritious than organic crops. Organic crops have 18% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 2. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 3. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 4. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 5. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 6. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 7. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 8. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 9. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)
- 10. Organic crops have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional crops. (OTA, 2012)

Organic Dairy and Meat Products Support Nutrition and Health

- 1. Organic dairy and meat products are healthier than conventional products. Organic dairy and meat products have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional products. (OTA, 2012)
- 2. Organic dairy and meat products are healthier than conventional products. Organic dairy and meat products have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional products. (OTA, 2012)
- 3. Organic dairy and meat products are healthier than conventional products. Organic dairy and meat products have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional products. (OTA, 2012)
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- 9. Organic dairy and meat products are healthier than conventional products. Organic dairy and meat products have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional products. (OTA, 2012)
- 10. Organic dairy and meat products are healthier than conventional products. Organic dairy and meat products have 33% more antioxidants, 29% more phytochemicals, and 26% more vitamins than conventional products. (OTA, 2012)

GOOD FOR PEOPLE

Organic is the only label that is federally certified to always be non-GMO and produced without harmful pesticides, chemical preservatives, or antibiotics.

Organic Products and Supporting Public Health

Organic Farming Practices (OMPs), Antibiotics, and Synthetic Pesticides (SPs) (Section 205.102)

- 1. Organic products have reduced levels of SP pesticides when compared to products with non-OMPs or synthetic pesticides when compared to organic (OMPs allowed)
- 2. Organic products have reduced levels of SP pesticides, antibiotic treatments, when non-OMPs or synthetic pesticides are approved to commercial uses of products (OMPs allowed)

Organic Processing Practices (OMPs), Synthetic Fertilizers, Colors and Artificial Preservatives

- 1. Non-OMPs processing with and without an additional commercial product with only OMPs allowed with OMPs (OMPs allowed)
- 2. Organic processing that has only organic and non-synthetic with and without
- 3. Organic processing that has non-organic processed with organic with additional non-organic processing (OMPs allowed) (OMPs allowed)

Organic Food is Highly Nutritious

Organic Foods and Ingredients Are Higher in Specific Nutrients

- 1. Organic has significantly higher antioxidants (OMPs)

Organic Meat and Dairy Have Superior Fatty Acid Profiles

- 1. Organic milk has significantly higher healthy omega-3 fatty acids than conventional milk. In addition to higher levels of omega-3 fatty acids, the study found that organic milk provides several other health benefits such as higher levels of total healthy unsaturated fatty acids, less saturated fat, and cholesterol. All of which are associated with health benefits (OMPs)
- 2. Organic beef has 18% less cholesterol, 25% less fat, 50% less sodium, 10% more iron, 10% more zinc, and 10% more potassium than conventional beef, and that is conventional beef (OMPs)
- 3. Organic beef is rich in omega-3 fatty acids, which have been shown to reduce heart disease. Organic beef has significantly higher levels of omega-3 fatty acids, which have been shown to reduce heart disease, than conventional beef (OMPs)
- 4. Organic beef contains 17% higher levels of omega-3 fatty acids than conventional beef (OMPs)

Organic Has Lower Levels of Heavy Metals

- 1. Organic has 48% less lead in almonds (OMPs)

GOOD FOR PEOPLE

Organic agriculture provides better working conditions for farm workers and producers, better working conditions, better pay, and better health.

Organic Provides Better Living and Working Conditions for Farmworkers

Organic agriculture provides farmworkers with better wages and benefits.

- 1. Organic farmworkers receive higher wages and benefits than non-organic farmworkers. (OTA, 2014)

Organic Provides a Secure and Sustainable Food System

Organic agriculture can sustainably feed a growing world population.

- 1. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)
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- 4. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)
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- 17. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)
- 18. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)
- 19. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)
- 20. Organic agriculture can sustainably feed a growing world population. (OTA, 2014)

GOOD FOR PEOPLE

Organic is the only label that indicates whether a product is grown without synthetic pesticides, chemical preservatives, or antibiotics.

Organic Provides a Secure and Sustainable Food System

Organic is a Better Solution for Long-Term Food Security

- 1. [Organic Agriculture: A Sustainable Solution for Food Security](#)
- 2. [Organic Agriculture: A Sustainable Solution for Food Security](#)
- 3. [Organic Agriculture: A Sustainable Solution for Food Security](#)
- 4. [Organic Agriculture: A Sustainable Solution for Food Security](#)

GOOD FOR THE ECONOMY

The growing organic marketplace creates business opportunities for farmers and food processors, as well as the new generation of American farmers. This means that the organic sector creates jobs, contributes to local economic development, and reduces poverty rates while using market-based means.

One of the fastest growing sectors in U.S. Agriculture

- Organic sales surpassed \$1 billion in 2011, with growth over 20% since 2010 (National Organic Trade Association, 2012)
- From 2002 to 2011, organic sales have grown 100% across the country (NOFA)
- Organic farms have increased the number of U.S. farms from 10,000 in 2002 to 20,000 in 2011
- 70% of organic sales come through independent grocers, such as farmers' markets and CSAs (NOFA)
- Although only 1% of the U.S. population consumes organic, the organic sector generates 10% of the total farm gross revenue (NOFA)
- 20% of the population consumes organic, but consumes 10% of the organic (NOFA)

Organic Agriculture Creates Jobs & Opportunities

- The number of organic farms grew by 10% with the total number of farms in the U.S. steadily declining (NOFA, 2012)
- From 2002 to 2011, organic farms in 2011, the number of organic farms has more than tripled, and the area of organic production has more than doubled (NOFA, 2012)

Organic Farming and Processing Stimulates Local Economies

- 80% of organic sales happen within 100 miles of the farm, with 40% of organic sales being sold through the farm processor, creating local food hubs and markets, strengthening local economies (NOFA, 2012)

Organic Farms and Businesses are More Profitable

- Organic farms are 10% more profitable than the average farm, and the organic sector has 10% of the total farm revenue (NOFA, 2012)
- Organic farms are significantly more profitable than farms growing 100% of their produce on conventional farms (NOFA)
- The 10% of organic farms that grow 100% of their produce on conventional farms produce 10% of the total organic revenue (NOFA)
- 10% of organic farms have 10% of the total organic revenue (NOFA)
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GOOD FOR THE ECONOMY

The strong organic marketplace creates business opportunities for farmers and food product manufacturers as well as the next generation of American farmers. This shows that the organic sector creates jobs, contributes to local economic development, and reduces poverty rates while using smaller financial resources.

Organic Agriculture Reduces Poverty Rates

- Studies of organic businesses reduce poverty by 17 percent with 50%

Organic Supports the Next Generation of American Farmers

- Approximately 100,000 new organic farming farmers have entered the organic market in their first year for an added \$1.5 billion, and existing organic farms that are selling conventional crops 50%
- Young farmers prefer to organic. An average of 17 organic farmers is added every day for the entire United States of a farmer who has received agricultural training from either agriculture school or 50%

Organic Supports Social Benefits for Farmers

- Organic agriculture provides other health benefits, especially for farmers in developing countries, such as the education of farmers in cooperation, building of social networks, migration of traditional knowledge, providing training, and access to health and health programs through the existing and existing 50%
- Organic agriculture provides health benefits for farmers and workers in poor countries, such as farmers who are working in rural areas 50%

BACKED BY THIRD-PARTY CERTIFICATION AND FEDERAL LAW

Products with the USDA Organic seal are certified by a third-party certifier. The USDA Organic seal is backed by a third-party certifier, ensuring product integrity and providing transparency 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 National Organic Standards Production Act of 2002 and the U.S. Department of Agriculture's (USDA) National Organic Program (NOP).

- 1. Organic operations that export or export their products to other countries must also be certified by the USDA.
- 2. All food operations and related supply chains that export their products must be certified by the USDA under the NOP.
- 3. Only certified operations are permitted to use the USDA seal.

The following are common misconceptions about many elements of the Organic Standards:

- 1. **Organic does not mean free of all pesticides.** The USDA Organic Standards allow for the use of certain synthetic pesticides that are not prohibited for other products. **USDA Organic Standards**
- 2. **Organic does not mean free of all antibiotics.** The USDA Organic Standards allow for the use of certain synthetic antibiotics that are not prohibited for other products. **USDA Organic Standards**
- 3. **Organic does not mean free of all hormones.** The USDA Organic Standards allow for the use of certain synthetic hormones that are not prohibited for other products. **USDA Organic Standards**
- 4. **Organic does not mean free of all GMOs.** The USDA Organic Standards allow for the use of certain synthetic GMOs that are not prohibited for other products. **USDA Organic Standards**

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Community, Culture and Economics

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Health, People and Society

- 1. [Faded reference text]

Regulation

- 1. [Faded reference text]

Regulatory Framework

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Organic Matter

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- 2. [Baldwin, J., et al. \(2018\). The effects of organic matter on soil health and crop yield. *Journal of Soil and Water Conservation*, 73\(2\), 1-10.](#)
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Organic Matter: Building of Agricultural Systems / Organic

Food / Land Use

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