



## Plant-based materials can improve environmental resilience to help us address challenges facing our planet including municipal waste, soil health, water quality and greenhouse gasses.

Plant-based products are made from materials derived from renewable feedstocks that can serve a wide range of consumer and industrial roles. These products are alternatives, and sometimes drop-in replacements, to traditional products derived from fossil-fuel based materials. Due to their unique composition, the entire family of plant-based materials has an equally wide range of end-of-life options, from recyclability to compostability.

Products and materials derived from plants present a clear opportunity to address these challenges head on.



Municipal Waste



Soil Health



Greenhouse Gas Emissions



Water Quality

### Municipal Waste

- Over half of the municipal waste produced annually in the U.S. ends up in landfills.
- Since the rise of plastic as a ubiquitous consumer material, it is estimated that only 9% of all plastic produced has been recycled, and roughly 75% ends up in either a landfill or the environment.
- Unlike most traditional materials, plant-based materials have a range of disposal options that can contribute to solving the mounting municipal waste crisis: some plant-based materials are recyclable, some can be composted, and some can biodegrade.
- Plant-based products and materials have the potential to help divert organics and plastic waste from landfill.

### Greenhouse Gas Emissions

- Unlike fossil fuel-based products, plant-based materials are made from renewable sources like bamboo, corn, and hemp that pull carbon dioxide from the atmosphere.
- Food waste takes up 24% of landfilled municipal waste, producing large amounts of methane, a greenhouse gas that is much more potent than carbon dioxide.
- Plant-based food packaging and serveware can significantly reduce landfill emissions by helping to divert food waste from landfills to compost facilities to make soil-enriching compost.
- Biobased products have the potential to reduce greenhouse gas emissions by an estimated 12.7 million metric tons of CO<sub>2</sub> equivalents per year.

### Soil Health

- Compostable plant-based materials can contribute to the total amount of compost generated in the U.S. by the materials themselves, as well as any food waste associated with them.
- Compost is a valuable soil amendment that can heal our nation's depleted soil resources, and will benefit farmers, homeowners, landscape managers, and others looking to improve the physical and chemical characteristics of soil.

### Water Quality

- Plastic in the ocean is set to outweigh fish by the year 2050 unless we change course.
- Increased adoption of plant-based products and materials, paired with improved collection infrastructure, can prevent more plastic waste from ending up in bodies of water.
- Compost derived from plant-based materials is a powerful tool in preventing nutrient runoff into our nation's waterways.
- For every 1% of organic matter content, each cubic foot of soil can hold an additional 1.5 quarts of plant-available water.