

CASE STUDY — THEO CHOCOLATE

A Switch to Plant-Based Packaging



BACKGROUND & GOALS REDUCE CLIMATE IMPACT

Theo Chocolate is an enthusiastic and mission-driven brand that is integrating sustainability into every aspect of their company. They are making life sweeter — far beyond their chocolate — by investing in the lives of their cocoa farmers in Peru and Eastern Congo.

The company sets high standards for social and environmental responsibility — that is why all of their ingredients are third party verified. They are fair trade certified, USDA Organic, STAR-K Kosher certified and do not use GMOs in their products.

Now, Theo Chocolate is pushing the bar even higher by bringing their products to market in 100% plant-based packaging.



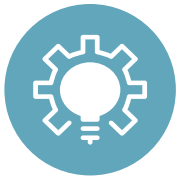
PROCESS IMPROVING THEO CHOCOLATE'S PACKAGING IMPACT

For this study, Theo Chocolate wanted to decrease fossil fuel use while maintaining shelf life and improving their current waste stream by switching to plant-based packaging from a metalized fossil-based film.

To measure the environmental benefits, Theo Chocolate applied and was accepted into a Packaging Climate Optimization project — a partnership between Climate Collaborative and Trayak. This project connects Climate Collaborative-committed companies to Trayak, who uses a cost-effective, streamlined Life Cycle Assessment (LCA) to quickly benchmark existing packaging and develop climate-improved alternatives.

All three organizations worked together to collect packaging system information and perform the analysis with Trayak's LCA tool, EcolImpact-COMPASS (Comparative Packaging Assessment).

Switching to a plant-based film showed improvements in freshwater ecotoxicity, GHG emissions and fossil fuel use. However, the potential switch showed slight increases in water use, mineral resource use and packaging to product weight. In addition to these indicators, Theo Chocolate needed to evaluate the plant-based packaging to ensure damage rate, barrier properties and cost weren't negatively impacted.



SOLUTION

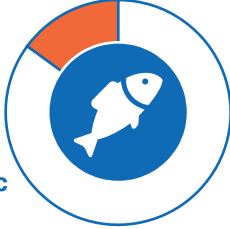
BY SWITCHING THEIR PACKAGING FROM A METALIZED FOSSIL-BASED FILM TO A PLANT-BASED FILM, THEO CHOCOLATE CAN:

Reduce Freshwater

Ecotoxicity by

14.8%

-74,419
comparative toxic
unit ecosystems



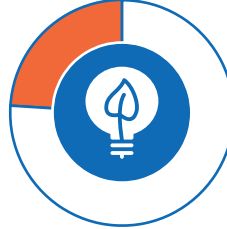
Making this packaging change for an annual volume of 2.8 million units will reduce freshwater ecotoxicity by 74,419 Comparative Toxic Unit ecosystems. Freshwater ecotoxicity is the quantity of environmental emissions resulting in aquatic toxic impacts released throughout the life cycle.

Reduce Fossil Fuel

Consumption by

23.9%

-148,634
Megajoules of
energy



If Theo Chocolate switches to a plant-based film to annually deliver 2.8 million units, fossil fuel consumption could be reduced by 148,634 MJ — **equivalent to 3 average U.S. homes powered for one year.**



Reduce Greenhouse Gas

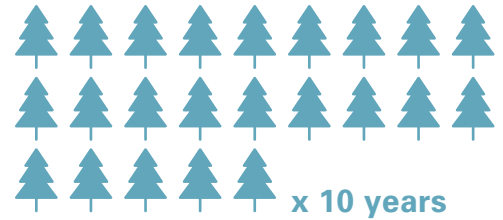
Emissions by

1.95%

1 ton
of co2 equivalent
units annually



This is the same amount of carbon that is sequestered by **23 tree seedlings grown for 10 years.**



RESULTS

Theo Chocolate engaged in this case study because of their commitment to making the world a better place. They are setting high expectations for themselves as well as other companies in the industry.

End of Life - A main driver in this switch is considering the end of life of Theo Chocolates' packaging. This specific plant-based film is home compostable and marine degradable.

Carbon Footprint - While all the LCA indicators are important to Theo Chocolate, their carbon footprint is of greatest concern. In switching to a plant-based film, Theo Chocolate reduces their carbon footprint because the material GHG emissions impact of the plant-based film is lower. The company is also reducing their reliance on fossil fuel-based plastics.

PERFORMANCE CONSIDERATIONS

Not all materials perform the same, so it is important for Theo Chocolate to perform the appropriate tests on the new plant-based film to ensure the package meets shelf life requirements.

