pet sustainability coalition + EARTH ANIMAL

How Life Cycle Assessments Can Give Answers for Difficult Product Packaging Decisions

In 2019, **Earth Animal** considered a packaging switch for their Wisdom® Dog Food and wanted to understand the full environmental impact of three different flexible packing options: bio-based (their existing packaging), traditional petroleum based plastic multilayer, and recycle-ready mono material. Using **project support credits included in their PSC Membership,** Earth Animal conducted a **Life Cycle Assessment** (LCA) to compare the options.

GET A HEAD START by incorporating LCAs regularly into decision-making! Launching an LCA before implementing a costly change in procedures saves your business valuable time and money.

A DEEPER DIVE INTO A LIFE CYCLE ASSESSMENT

An LCA is a science-based, comprehensive evaluation to consider the environmental footprint of a product through its entire life, from cradle to grave.

1. Extraction of Raw Materials
2. Production & Manufacturing
   ENERGY & WATER USED / EMISSION OF POLLUTANTS
3. Transportation
   BETWEEN EACH LIFE CYCLE PHASE
4. Customer Use
5. End Life
   DECOMPOSITION IN COMPOST / RECYCLED FOR RE-USE / DISPOSED IN GARBAGE

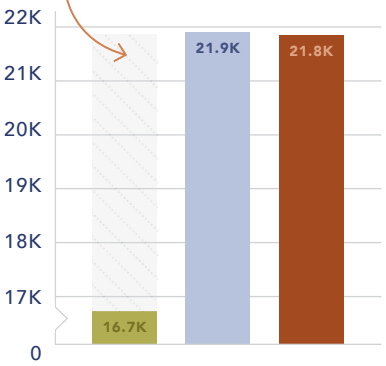
The Results of Earth Animal's LCA*

Earth Animal's LCA compared the impact of fossil fuel consumed, green house gas (GHGs) emitted and water over the entire life cycle of three different packaging options. For every 11,500 packages of 1lb bags produced, the LCA showed:

BIO-BASED (CURRENT) **RECYCLE-READY MONO MATERIAL** **TRADITIONAL PETROLEUM BASED PLASTIC MULTILAYER**

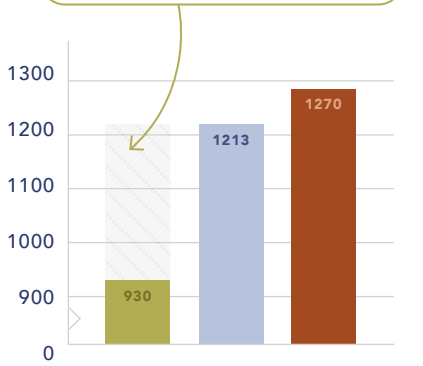
FOSSIL FUEL USE Measured in Megajoules (MJ)

SAVINGS OF
5.2K KW HOURS OF ELECTRICITY
≈131,268
Smart Phone Charges



GHG EMISSIONS Measured in kg CO_2 eq

SAVINGS OF
284.77 KG CO_2 EQ EMISSIONS
Which is like taking the average passenger vehicle off the road for
707 Miles



WATER USE Measured in Liters

SLIGHTLY HIGHER
40,343 LITERS MORE WATER
for every 11,520 packages of 1lb bags
≈250 Bathtubs

DISCOVERY..... Although their current **bio-based packaging** used slightly more water, it was **considerably lower in greenhouse gas emissions and fossil fuel** use than the other options.

CONCLUSION... As appealing as the concept of recycle-ready packaging was for Earth Animal, the LCA ultimately convinced them to **stay with their bio-based packaging** *for the moment.**

OTHER WINNING SOLUTIONS IDENTIFIED:

Size Matters!

By evaluating 3 different sizes (1lb, 3lb, 10lb) of bags of food, Earth Animal learned the true opportunity for environmental footprint savings when using larger bags.

Substituting (1) 10lb bag for (10) 1lb bags means less materials to package the same amount of product.

Converting 11,520 1lb bags to 1,150 10lb bags saves...

31,1888 LITERS OF WATER
OR THE EQUIVALENT OF
200
Bathtubs

4,707.22 KILOWATT HRS OF ELECTRICITY
OR THE EQUIVALENT OF
424,452
Smart Phone Charges

178.52 KILOWATT HRS OF ELECTRICITY
OR THE EQUIVALENT OF
Taking the average passenger vehicle off the road for
443 Miles

Key Takeaways

- Because environmental impacts are never black and white, companies need to assess which indexes are most important to their **strategic goals.**
- New technologies are constantly emerging, which means continued analysis is **always essential.**

*IN FACT, research has changed in the short time since Earth Animal conducted the LCA. PSC plans to repeat the LCA in the near future.