Change Pallets for Climate Benefit

January 27 2016

by Adam M. Pener

Lightweight corrugated cardboard pallets are as effective as other pallets. Photo Credit: Change the Pallet

Background

Imagine that the average U.S. dishwasher is only 65% full when run, but you had the power to ensure that all dishwasher loads were filled to capacity. Massive water savings and reduced energy consumption come to mind, but what about less detergent use, and scaling back on the substantial resources needed to produce and transport detergent?

By replacing wood and plastic pallets with lightweight corrugated cardboard pallets, we can ensure that U.S. truck shipments are much closer to 100% than currently is the case. And yet we don't.

Let's change that, starting with some directional numbers:

- Wood pallets weighing approximately **50 pounds** each are loaded with product and shipped on semi-trailer trucks ("semi's")
- An estimated **5 billion** such loaded wood pallets are shipped in the U.S. each year (based on 2 billion pallets in circulation, used 5 times or less)
- Assuming an average of 20 pallets per truck equates to **250 million truck shipments**
- Applying the conservative assumption of only 400 miles per trip takes us to **100 billion truck miles per year**

How much is 100 billion truck miles? The equivalent of driving to Mars and back...more than seventy (70) times.

These 250 million trucks, each traveling 400 miles -- and hypothetically weighing 65,000 per truck -- will use over 1.66 billion gallons of diesel and emit nearly **170 million metric tons of CO2e(carbon dioxide equivalent) annually**.

Corrugated pallets weigh only ~10 pounds, so "changing the pallet" would lower the amount of pallet weight alone shipped each year in the U.S. by ~200 billion pounds. Doing so would theoretically save 205 million gallons of diesel and emit some **21 million fewer metric tons of CO2e annually** (based on a 10% drop in fuel consumption).

While intuitive, this model does not hold in the real world, where vast CO2e reductions are driven by filling space, not reducing weight.

The IKEA® Model

In 2012, IKEA® changed the entirety of its global supply chain from wood to corrugated cardboard pallets. That included a directive to 1000+ suppliers in 51 countries to ship to IKEA on corrugated pallets.

[Note: Unlike IKEA, many U.S. companies require suppliers to ship on wood pallets. To quote p. 28 of Walmart's® 2015 "Labeling and Packaging Logistics Distribution Center Guide": "Corrugate pallets are not acceptable to ship into the Walmart® DCs [sic]."]

If you care about reducing CO2e, IKEA's reported results are mind-boggling: 300,000 fewer metric tons of CO2e over four years.

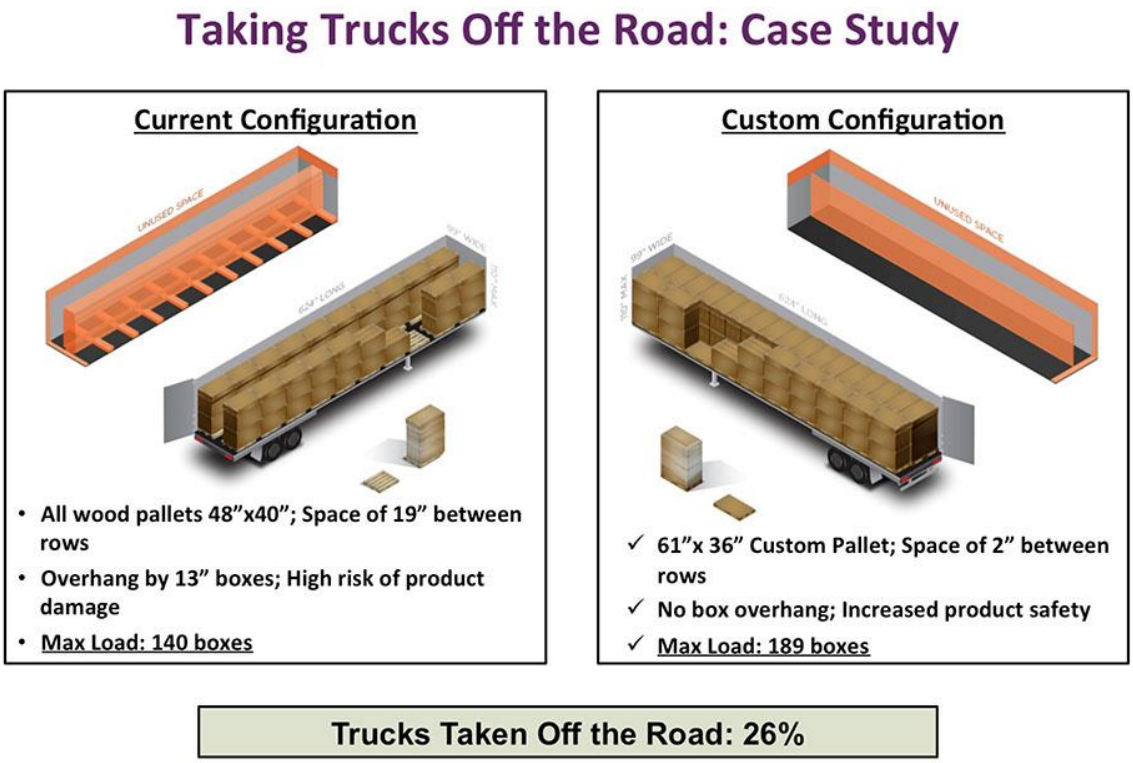
What stands out in IKEA's publicly-available sustainability reports is that IKEA is able to place 15% more product per truck as a result of switching to corrugated pallets, which "enabled [IKEA] to avoid between 50,000 and 100,000 transport movements a year." To review a summary on IKEA's "Handling Material No Wood" program, please see Exhibits A and B of the white paper we sent to all 50 U.S. governors and treasurers when we launched Change the Pallet | Change the Planet in May, 2015.

More product on each truck, equals fewer trucks. Applying IKEA's 15% increase in product-per-truck to our directional U.S. model shows replacing wood pallets with

corrugated ones would result in 37.5 million fewer truck shipments needed to ship the same amount of product.

Doing so would reduce U.S. CO2e by 25.5 million metric tons per year. For perspective, that's the equivalent of shutting down 7 coal-fired power plants for one year. That's before you calculate the emissions savings from shipping 80% less pallet weight on the remaining 212.5 million trucks in our directional model.

The "how" is simple: wood pallets come in standard sizes, which limit the available truck bed volume. Conversely, corrugated pallets can, on a cost-effective basis, be made to more fully fill up the truck bed. For example, I've seen a corrugated "bike box pallet" that would allow bike manufacturers and retailers to ship 189 bikes per truck versus the 140 available with standard 48" x 40" wood pallets.



Example of savings using the "bike box pallet." Photo Credit: Change the Pallet

Savings Cubed

The detergent analogy reflects the type of exponential savings available when systems gain efficiency. For instance, IKEA no longer disposes of millions of wood pallet each year; now, they simply place the pallets in on-site recycling bins. Think how easy your university could do the same if it received corrugated paper pallets rather than wood.

Only four hundred wood pallets can fit on a semi, so imagine how many semis are needed each year to move pallets to service 5 billion annual pallet shipments. At least one type of paper pallet claims to be able to transport 1,800 pallets per truck to usage

Source: http://www.connect4climate.org/blog/change-pallets-for-climate-benefit

sites. That would be an additional 3 out of 4 trucks off the road. What about removing wood pallets from their end destination? Fewer trucks still, and yet another swath of emissions not spewed into the atmosphere.

When 2 + 2 = 73

Sometimes systems do not work efficiently. Sometimes companies do not make choices based on what's best for the consumer, or the environment. Sometimes vested interests lobby to protect the status quo. Sometimes inertia and resistance to change prevents good-meaning companies like Whole Foods® from allowing suppliers to ship on CO2e-reducing paper pallets.

While it would be easy to point a finger at Corporate America, is doing so fair before we self-evaluate? After all, we are the demand, and we're not using our buying power to trigger change. We are the university officials and students, hospital and business executives, and others that buy products that are delivered to us on wood pallets. The old saying is true. Change starts with you.

IKEA told 1000+ suppliers in 51 countries to ship to them on corrugated paper pallets. Why does your university or business not tell its suppliers to do the same? Until you start asking for corrugated pallets, is it reasonable to think that Walmart® will overhaul its global logistics?

Speaking of taking action, Oregon State Representative Julie Parrish has introduced a bill for Oregon to become the first state to mandate that suppliers use corrugated pallets when shipping to state Universities and other public entities. The bill has twenty co-sponsors from both parties. I encourage you to support such activities, resulting in reduced CO2e and doing its part in preventing climate change.

In closing, I speak for many people when I say that Change the Pallet is truly humbled, and honored, by our designation as a Knowledgeable Partner by Connect4Climate. Thank you Connect4Climate, for this opportunity, and your tremendously important – and effective – work in combatting climate change globally.

******

Adam M. Pener is Founder and Executive Director of The Forward Edge Initiative™ (FEI), an Oregon-based 501(c)3. Change the Pallet™ is a project of FEI.