



# **Wax-Free Boxes: A “Less Bad” Solution?**

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# From Dan Imhoff's "Paper or Plastic"



➤ **90%**

➤ **Upstream**

➤ **Raw Materials**

➤ **Processing**

➤ **Design**

➤ **Manufacture**

➤ **Transportation**

**10%**

**Downstream**

**Recovery**

**Reuse**

**Recycling**

**Landfilling**

**Incineration**

**Litter**

# SOLIDBOARD VS WAXED CORRUGATED BOXES



- The environmental challenges of waxed corrugated boxes are well known:
- Non-recyclable and contaminate OCC stream
- Unless composted, end up in landfills or incinerators (or the landscape)
- Require non-sustainable, fossil fuel-based wax coating
- Must be separated from non-coated OCC; increased labor costs
- Cost of disposal for average supermarket is around \$1,700/year.

# Cost Calculation for Waxed Cardboard Disposal Per Store



- Approximately 4% of average supermarket cardboard is waxed (Produce is 20% of total)
- 415 average tons of OCC/yr.; 4%=17 tons
- At average \$100/ton disposal fees (hauling and tipping), \$1700/yr without labor
- At \$100/ton for OCC recycling revenue, total \$3400/yr. savings for non-waxed

# Cost Calculation Per Box



- Sorting and disposal costs for a typical waxed corrugated box: \$.21 (tipping fee, hauling charge, fuel, labor)
- Nationally, average revenue generated from recycling a typical wax-free box: \$.22
- Total value-added benefit of a wax-free (recyclable) container is \$.43/box

# What Is Solidboard?



- A laminated paperboard product
- Re-pulpable; recyclable with OCC
- Compostable in industrial and many farm compost environments.
- Utilizes recycled cardboard and/or paper sources in manufacturing
- Doesn't require special handling; saves labor \$'s
- Generates revenue for recycling



**Designed for ice-injected  
and hydro-cooled produce**

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M A R K E T



# Advantages of Solidboard

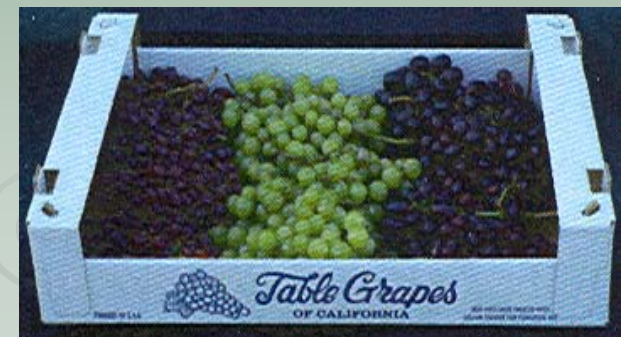
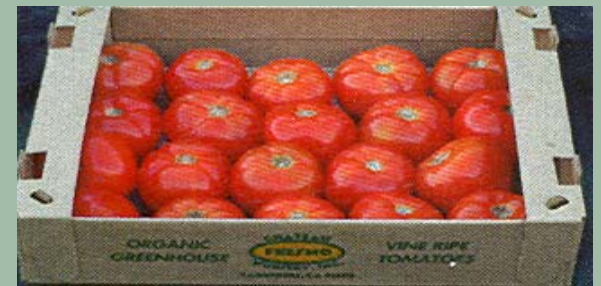


- Proven in Europe, where wax is banned
- Strength and structural integrity in wet conditions (crush test on single layer dry box: 1750.8 lbs.)
- Can be submerged in cold water, subjected to high-pressure showers, ice-injected, then refrigerated without degradation
- Proven: broccoli, corn, etc. regularly shipped cross-country without a box failure
- One-piece bottom design keeps produce from falling out.



Designed for wet and  
“ice packed” produce,  
clamshell containers  
and in-store displays

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# Produce Tray



- • Constructed to resist water & moisture
- and prevent fluid migration
- • FDA non-objection status for food contact
- • Rigid construction
- • Easily stackable
- • Recyclable, repulpable and compostable

# Advantages of Solidboard



- Same as previous box
- Crush test on single layer dry box: 1997.6 lbs.
- Used for all fruits and vegetables, including tomatoes, grapes, strawberries, clementines, avocados
- Useful for Produce department displays



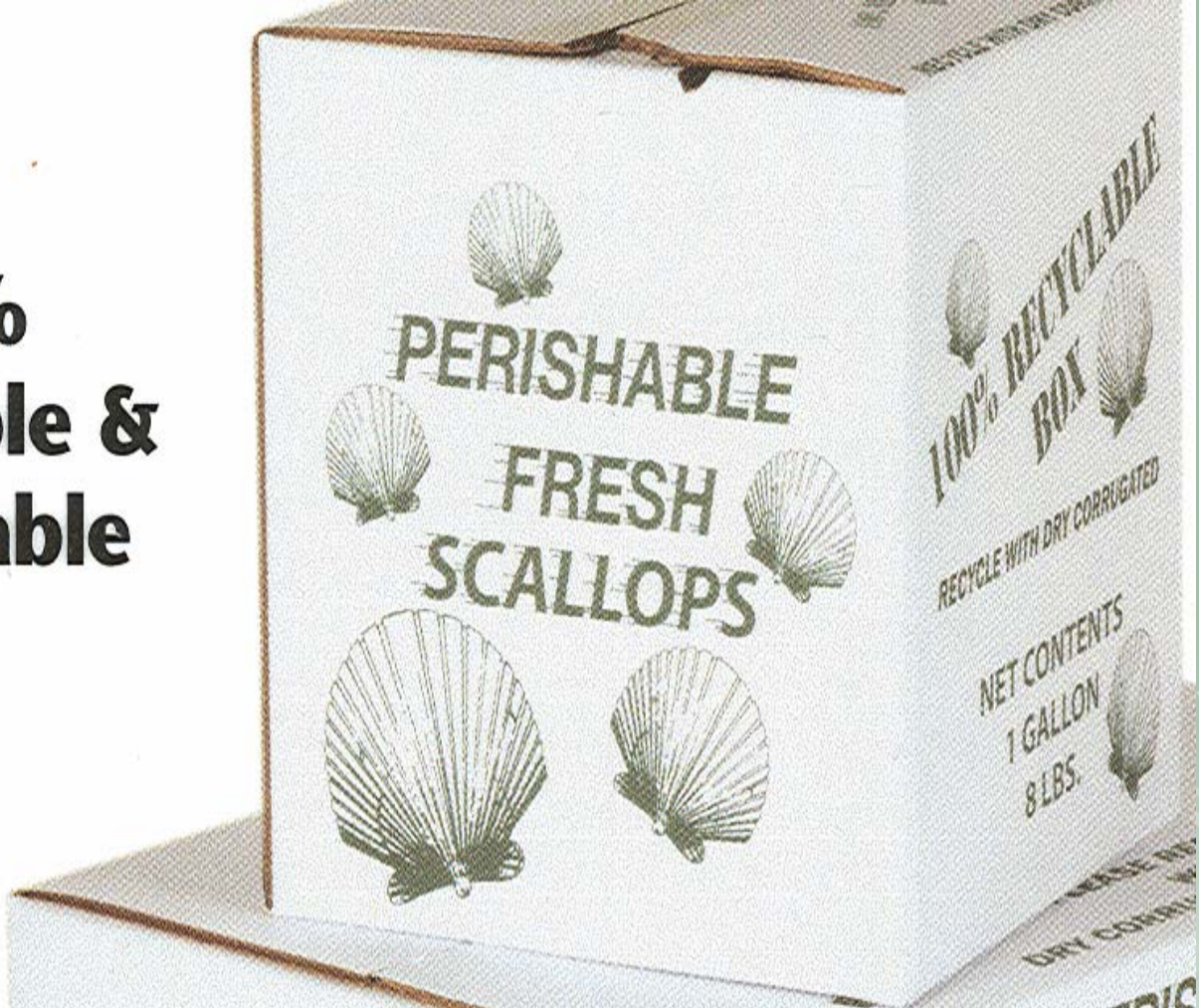
# Some other obvious applications for wax-free boxes



act



**100%  
Recyclable &  
Repulpable**





# Poultry & Meat Box



- • Rigid construction
- • Constructed to resist water & moisture
- and prevent fluid migration
- • FDA non-objection status for food contact
- • Custom sizes available
- • Easily stackable
- • Recyclable, repulpable and compostable

## “Less Bad”?



- Still tree-sourced, although recycled, fiber
- Still requires a percentage application of fossil-fuel based resin
- Extends “life” of fibers but not indefinitely
- Requires long-distance sourcing, production and shipping/trucking

## “Good”?



- Infinitely recyclable or “up-cyclable” material as technical nutrient, or
- Sustainable, bio-based material
- Utilizes intelligent materials pooling
- Locally-based, local-economy promoting
- Economic, environmental, social justice attributes (triple bottom line)



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