



12TH CANADIAN POLLUTION PREVENTION ROUNDTABLE

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Crowne Plaza- Chateau Lacombe





1.3 “Packaging Optimization: key to supply chain efficiency and sustainability”

Jack Ampuja, President, Supply Chain Optimizers

Sustainable Freight Packaging Pollution Prevention Conference



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UNIVERSITY

Campus



Packaging Dilemma



- Usually assigned to marketing or engineering
 - but packaging drives warehousing & transportation efficiency
 - yet typical firm is focused on packaging without considering supply chain impact
- *“Packaging remains a major area of supply chain optimization opportunity for most companies.”*
 - *Bob Delaney in ‘99 State of Logistics*

Box Efficiency



- Most economical box has ratio of
 $L_2 - W_1 - D_2$
- Example: $10 \times 5 \times 10 = 500 \text{ cu in}$
 $25 \times 5 \times 4 = 500 \text{ cu in}$
- Box #2 uses 20% more corrugated
- 10+ different ways to construct boxes
...each impacts total cost differently

Freight Impact



- Density is #1 cost factor in LTL and small package
 - More costly to ship 100 lbs of feathers vs 100 lbs of steel
 - Small package carriers now charge dimensional weight on domestic ground shipments
 - ...US less-than-truckload moving there too
- All LTL shipments in & to/from US have to comply with NMFC regulations which have 150 pages of packaging rules that impact freight cost

Wal*Mart Initiative



- Announced Nov '06 by CEO Lee Scott
- Efficiency & environmental benefit
- Suppliers must reduce packaging by 5%
 - private label scorecard began in Nov 06
 - 60,000 other suppliers started in Feb 07
- Projected savings in 2008: \$10Billion
\$3.5 B to Wal-Mart & \$6.5 B to suppliers
- *“Real opportunity is \$20 Billion”*
 - *Ampuja in Traffic World Dec '06*

Wal*Mart Examples



- Liquid detergent supplier was asked to reduce bottle by reducing water
 - supplier was reluctant so Wal-Mart offered merchandising support
 - All Small & Mighty yr 1 sales: \$35M
 - Entire industry now favors smaller bottles
- Improving 200 toy items eliminated 727 ocean containers/year from Asia
 - outstanding reduction in carbon emission

Pick-Pack Observations



- Most small package shippers utilize too few carton sizes: <10 is common
 - savings in purchasing are not enough to offset loss in distribution efficiency
 - filler & air are expensive to ship
- Typical company analyzed gets <65% cube utilization of outbound cases
 - the remaining 35%+ = filler & air

Specialty Retailer Project



- 2 million+ cartons per year
 - 8+ units per carton
- 6 million+ lines per year
 - 3 cases per line
- Used 5 cartons & 2 envelopes
 - Increased to 9 cartons & 2 envelopes
- Only one of original 5 cartons survived analysis

Specialty Retailer Results

- Carton reduction 10%
- Carton material reduction 27%*
- Filler reduction 27%*
- Packing labor reduction 10%*
- Cube reduction 15%
- Weight reduction 5%
- Freight cost reduction 13%*
- *Eliminated 200+ trucks per year from road*

Contact Info



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