

 **ATMO**  
**sphere**  
solutions for europe  

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**natural refrigerants**  

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15-16 October 2013, Brussels

A photograph of an elderly woman with short, wavy white hair and blue eyes. She is holding a small black cup filled with vibrant green grass blades up to her face, completely covering her mouth. She is looking directly at the camera with a slight smile. The background is a brightly lit produce aisle in a grocery store, filled with various fruits and vegetables, including large bins of yellow and orange produce. In the foreground, a black tray holds several ripe, red and yellow apples. The overall scene suggests freshness and quality of produce.

# Refrigeration @ Delhaize

**Reducing GHG emission  
is part of our sustainability  
strategy & our commitments**

# Where are we today?

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- Belux: 56 stores already running with natural refrigerants
- Belgium Affiliated stores:
  - 15 CO<sub>2</sub> transcritical stores
  - 16 CO<sub>2</sub> Cascade systems
- Greece: 1 CO<sub>2</sub> Cascade system
- Romania: 66 stores working with R290 plug-ins
- Most distribution centers on natural refrigerants
- 2 Trial transcritical CO<sub>2</sub> systems
  - Belgium: Running since March 2013
  - U.S.: Running since July 2013

# Results from trials - Design evolution

City Linthout (2006)



Delhaize S.P.L. (2013)



# Results from trials - Energy consumption

## Comparison of 3 stores:

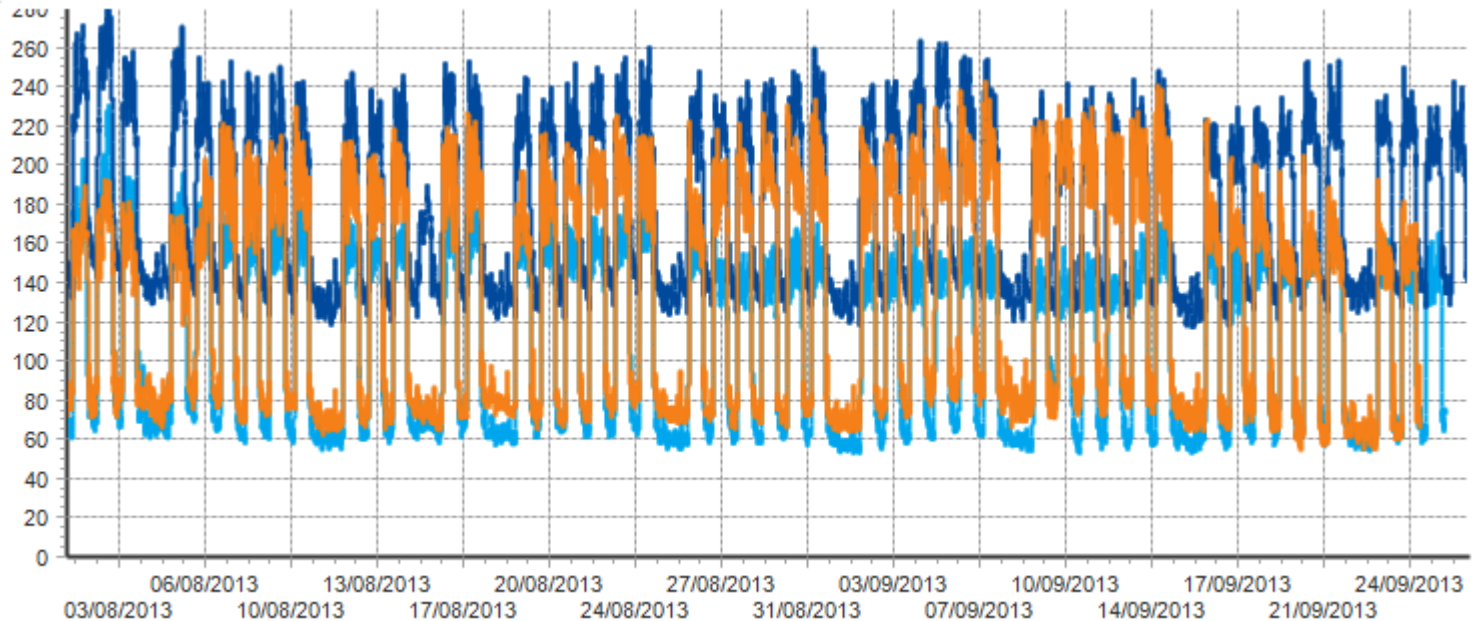
Waasland  
conventional  
R404a



Kontich  
cascade  
134A/ CO<sub>2</sub>



SPL  
transcritical  
CO<sub>2</sub>



# Results from trials – Maintenance/Service

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- Commissioning
- Maintenance checklist and periodicity
- R744 Leakage rate is high (29% - 2012)
  - Equipment, fittings and piping

# Barriers to adoption immediately

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- Few skilled companies / technicians
- Training & know how
- Legislation
- Technology & Safety
- Psychology
- Cost of initial investment
- No subsidies or tax credits



# How to move forward

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- Need turnkey project contractors
- Need certified people and systems
- Delhaize Group will
  - Update design standards for new and remodeled stores
  - Share and apply best practices on refrigeration
  - Good training programs from various organizations.
  - Case studies for information sharing.

# Conclusion

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***Delhaize Group is committed to increasing the number of natural refrigerant systems where they are feasible and cost-effective***



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Thank you very much!