Is Your Refrigerator Running?
Treasure Valley Grocery Store HFCs
Matt Clark, Jace Parker, and Rebekah Triolo

Question:
Do local grocery stores use refrigerants with the lowest Global Warming Potential?

Background:
The Environmental Protection Agency created a new policy in May 2016, SNAP, that was amended under the Clean Air Act of 1990 and required the phase out of the hydrofluorocarbon (HFC) R-22, because of its high global warming potential (GWP). Finding and using alternatives with a low GWP is important to help combat climate change and reduce risks to human health. Though there has been a switch from the use of HFC R-22, this does not mean that grocery stores are using environmentally friend HFC alternatives.

Methods:
We partnered with the Boise Co-ops located in Boise and Meridian and with the Canyon County Co-op. We collected refrigerant information from each store and analyzed the leakage rate to determine their global warming potential.
1. Participation of grocery stores
2. Data collection and calculation of HFC leakage rate
3. Assessment of alternative refrigerants

HFCs:
- R-134A
- R-404A
- R-507
- R-407A
- R-407C
- R-410A
- R-422B
- R-508B
- R-507

GWP of Current Refrigerants

GWP of Alternative Refrigerants

Conclusion:
Treasure Valley grocery stores have an average leakage rate of 2-3%. These stores have transitioned from R-22 to refrigerants with a lower GWP: R-404A, R-407A, and R-134A. Through our data analysis of alternative refrigerants, we see an opportunity for local grocery stores to switch to a different HFC refrigerant with even a lower global warming potential, such as R-152A.

A Special Thanks to:
Ben Jarvis from Idaho Department of Environmental Quality, Boise State's Department of Environmental studies, and Treasure Valley Co-ops.