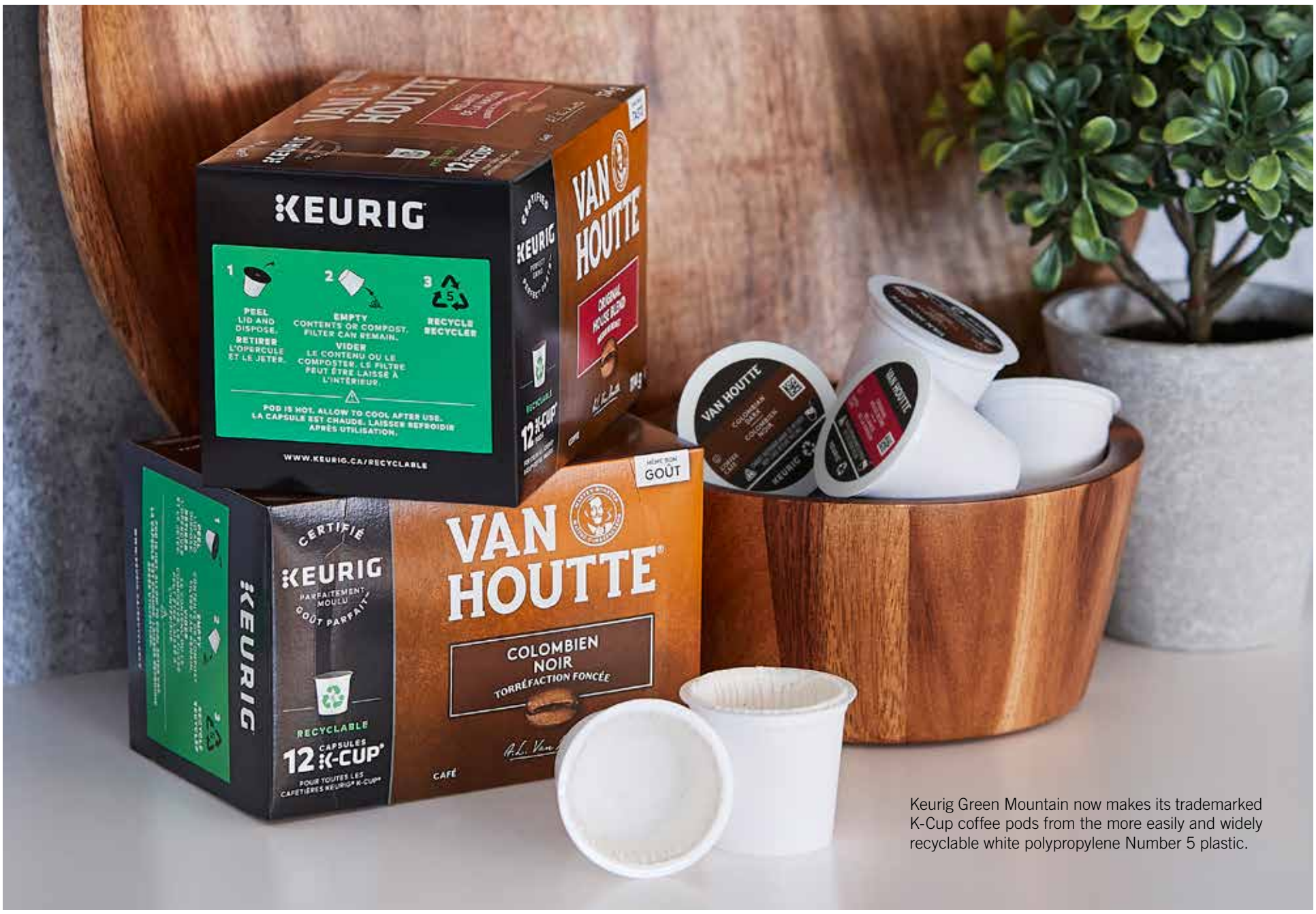


Keurig Green Mountain now makes its trademarked K-Cup coffee pods from the more easily and widely recyclable white polypropylene Number 5 plastic.

SINGULAR SOLUTIONS

Packaging innovation helping to address environmental concerns and public notoriety brewing over the popular single-serve coffee pods

BY MARY DEL CIANCIO

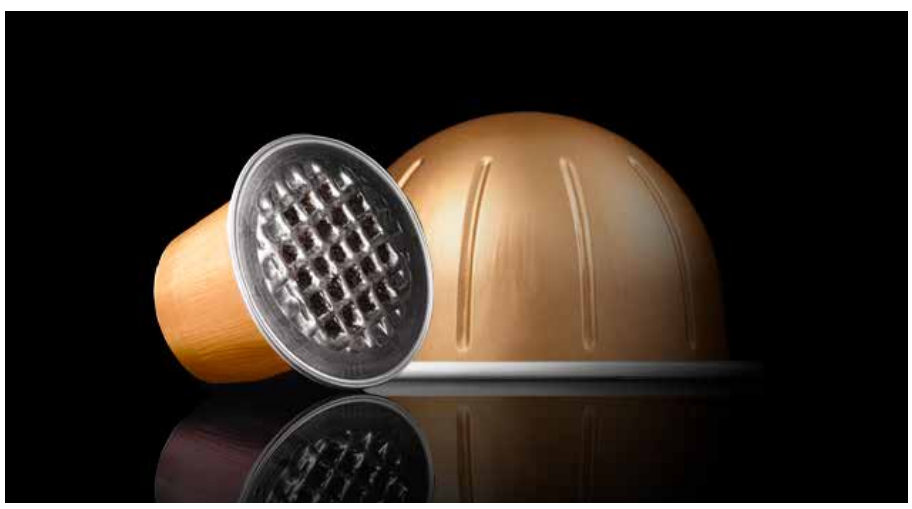
Single-serve coffee systems are found in many homes across Canada thanks, in large part, to the convenience and variety they offer consumers.

However, the single-serve coffee pods used in these popular systems have been the subject of much criticism in recent years due to the increased amount of packaging waste associated with them.

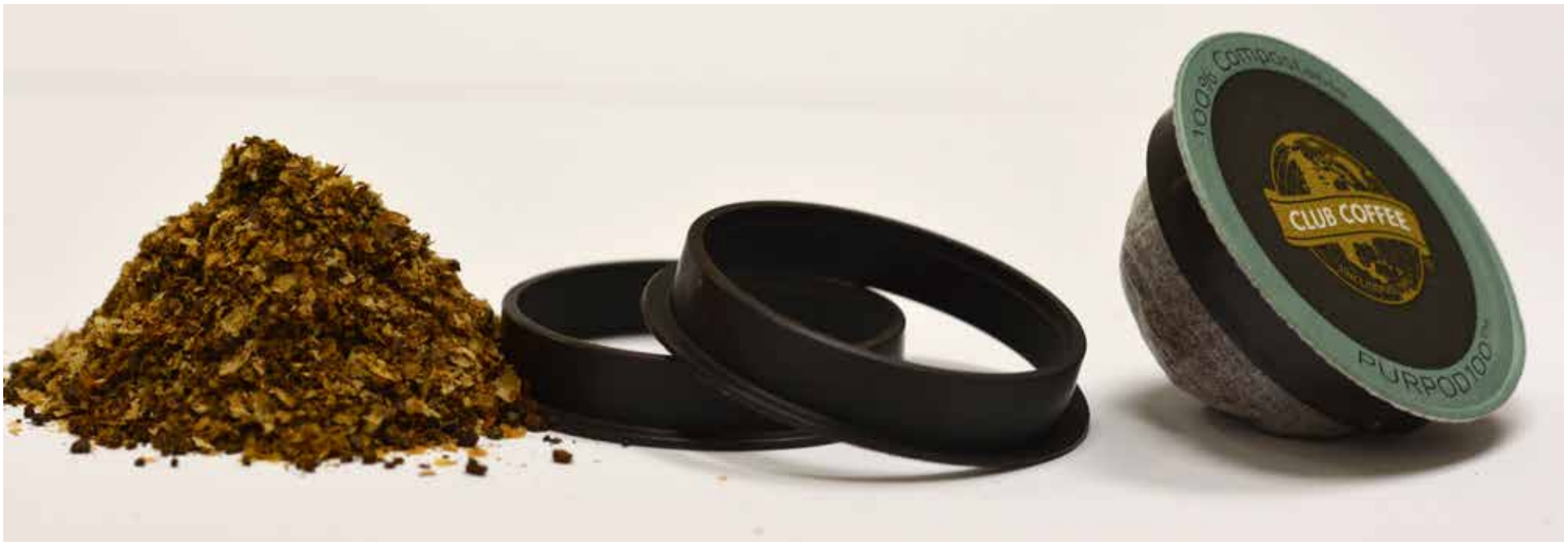
The pods haven't typically been compostable or recyclable in municipal food waste programs, so they often end up in landfills—a major concern in today's landscape characterized by growing emphasis on environmental sustainability, responsibility and awareness.

The good news is that single-serve coffee pod manufacturers have been working tirelessly in recent years to develop innovative, sustainable packaging that addresses these concerns. Several options—both compostable and recyclable—are already available on store shelves across the country, with more rolling out every day.

Club Coffee, a major Canadian roaster, contract manufacturer and distributor of packaged coffees, believes that it has the solution to single-serve waste—its

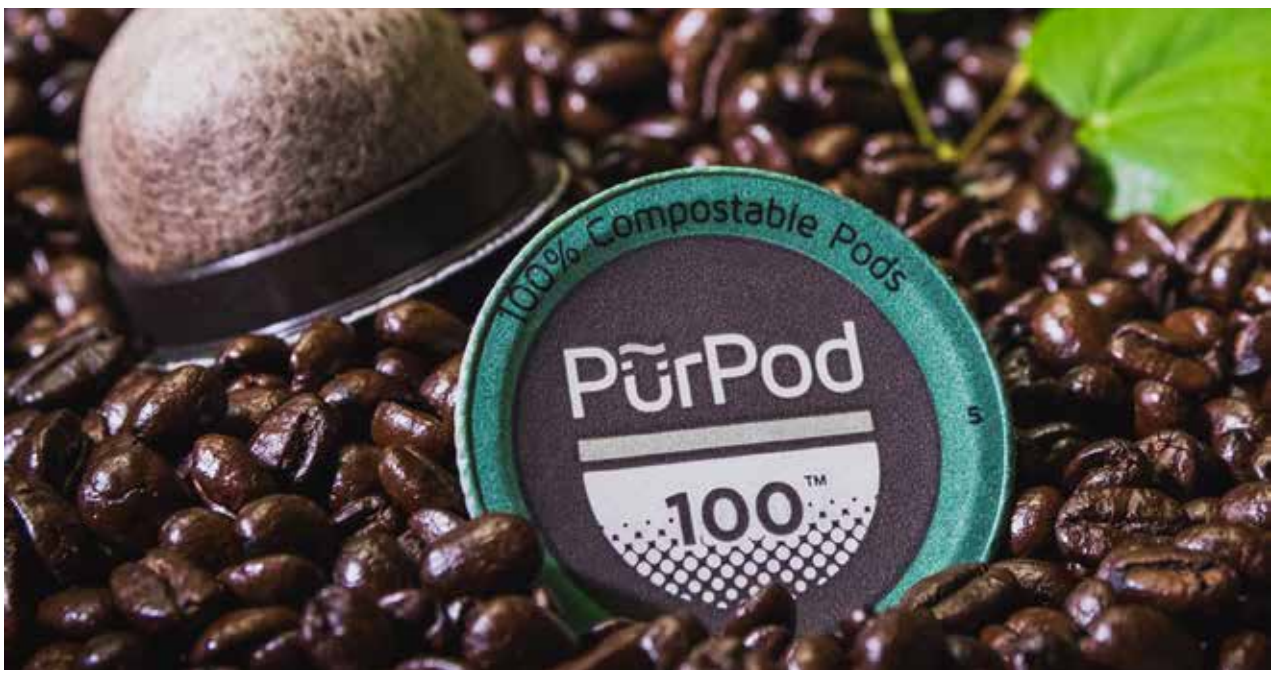


The single-serving coffee capsules from the Montreal-based Nestle Nespresso feature 100-percent aluminum constuction that makes them easily recyclable and more effectively diverted from the municipal wastestreams right across Canada, according to the company.



All key components used in the assembly of Club Coffee's PurPod100 single-serve coffee capsules are made from certified compostable materials that fully biodegrade in about five weeks.

A close-up view of the compostable PurPod100 coffee capsules running through their packaging steps at the Club Coffee plant.



The compostable properties of Club Coffee's PurPod100 coffee pods have made it the capsule of choice for some of the leading private-lable coffee brands in the Canadian market, including President's Choice and McCafe.

PurPod100, the world's first certified 100-percent compostable pod.

The Toronto-based company launched *PurPod100* back in 2016 after testing it in municipal and industrial composting facilities—tests which proved that the eco-friendly pod could break down in as little as five weeks in aerobic composting processes, which is faster than many other food waste products.

The *PurPod100* is certified by the **Biodegradable Products Institute (BPI)** and meets **ASTM International**'s *Standard D6868* for compostability, which means that it can disintegrate within an established period of time, produce compost that enables plant growth, and is safe for the environment.

And the pod can do all of this thanks to its innovative, award-winning packaging design and composition.

The *PurPod100*'s lid is made from a combination of paper and other compostable materials, as well as compostable inks; the ring—result of a collaboration between Club Coffee and the **University of Guelph**'s Bioproducts Discovery and Development Centre—is made from a unique compostable blend of coffee chaff (the husk of the coffee bean) and bio-resins (plant-based plastics); and the mesh filter holding the coffee is made from renewable, bio-based materials.

The entire unit is compostable, a feat which has won the *PurPod100* accolades for sustainable packaging and innovation in bioplastics from leading trade associations and publications. Leading brands, such as ***President's Choice*** and ***McCafe***, have also taken notice and adopted the format to house their popular coffees.

This is a win-win for consumers who get to enjoy the coffee they love, the convenience of being able to compost the entire pod, and the peace of mind knowing that waste isn't going to a landfill.

"We're delivering what consumers have made very clear they want—the same great coffee experience but with bio-based ingredients that

Nespresso encourages consumers to recycle their aluminum coffee pods through return programs with Canada Post (red bags) and municipal waste diversion agencies (green bags).

make it simple for them to dispose of with other food waste," says Solange Ackrill, Club Coffee's vice-president of marketing.

"We are in front of a growing green wave of innovation because we worked with partners in the academic and business worlds to find and implement fundamental changes, like using coffee chaff that used to go to waste ... these pods are small but they've had a big impact."

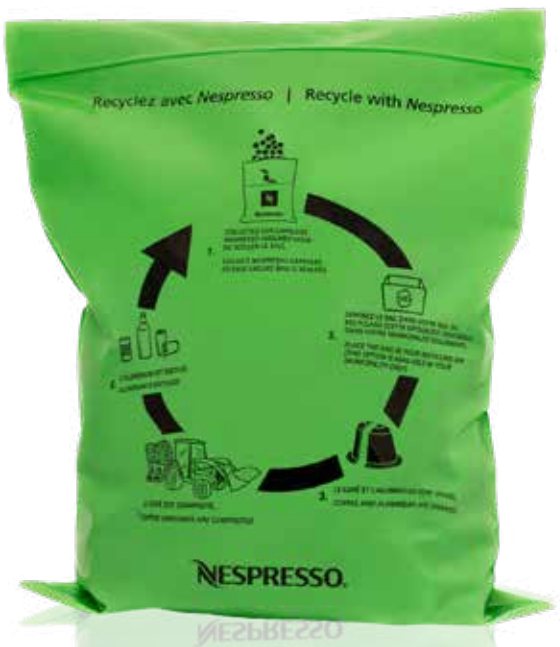
Keurig Green Mountain, a leader in innovative, single-serve brewing systems, has focused its efforts on recyclable pods. The company introduced its first recyclable ***K-Cup*** pods in the U.S. and Canada back in 2016, and has committed to making 100 per cent of its *K-Cup* pods in Canada recyclable by the end of 2018, and in North America by the end of 2020.

"When it comes to the single-serve pods, certainly the most visible challenge to the segment, and to our company, is making sure that those pods can be responsibly disposed of and have a second life," explains Monique Oxender, chief sustainability officer at Keurig Green Mountain.

Previously, the company's single-serve pods were manufactured from Number 7 plastic, which is not widely accepted for recycling.

After examining several options, the company decided that producing its *K-Cup* pod using recyclable polypropylene Number 5 plastic was the best solution for its customers and the environment.

More specifically, Keurig is using white polypropylene because there is more that can be

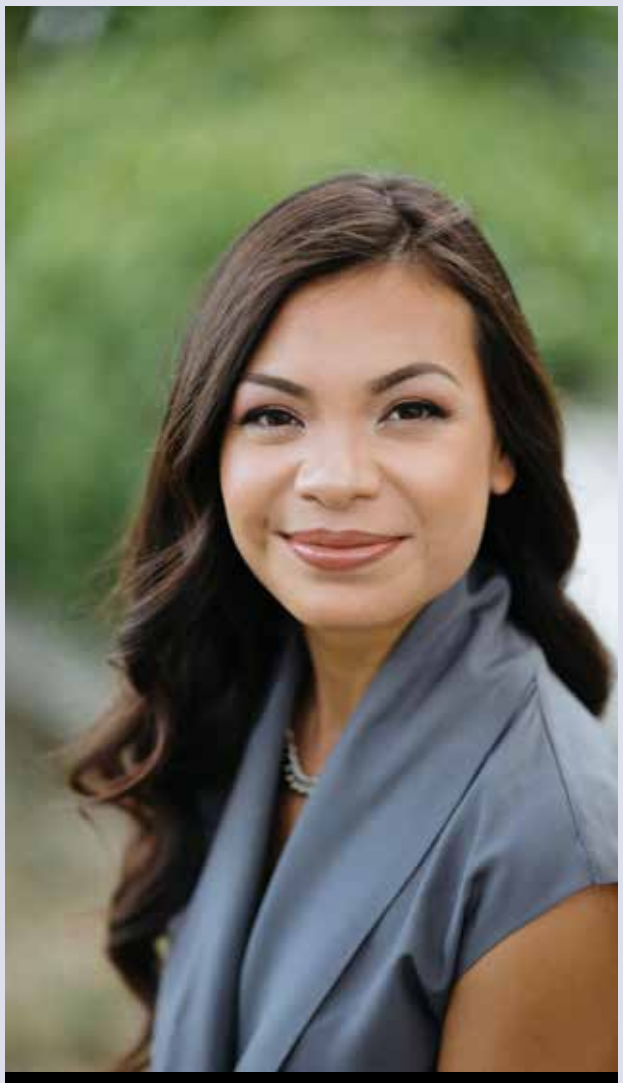


ONCE IN A LIFETIME

Putting carbon footprint in proper LCA context

When looking at the environmental impact of packaging, it's important to consider the entire life cycle of the product it protects, including how it's grown, how it's shipped, how it's manufactured, how it's stored and how it's used by the consumer at home, says Rachel Morier, director of sustainability for **PAC Packaging Consortium**. When you consider all of these factors, she says, single-serve coffee offers many advantages.

In fact, PAC decided to investigate the entire life cycle of coffee and learned that the majority of the coffee footprint is in the production and preparation of the coffee, with only 15 per cent of the overall footprint attributed to packaging. Its 2015 report, titled ***Life Cycle Assessment of Coffee Consumption***, compared a standard bulk brewed system with a hot plate to a standard **Keurig** system using the ***K-Cup*** format to determine which had a better environmental performance.



Rachel Morier,
Director of Sustainability,
PAC Packaging Consortium

It found that if the consumer brewed the exact amount of coffee and consumed all of that coffee, there was very little difference in the environmental footprint between the two when you consider that the standard bulk brew system uses more electricity and water.

However, if the consumer prepared too much coffee or had to dispose of it due to loss of freshness, the footprint of a bulk brew system increased significantly.

"We still see there's an opportunity to reduce packaging waste," Morier says, "but at the same time being mindful that there is actually some benefit to having a single-serve system, depending on how consumers consume their coffee."

According to **Nespresso Canada**'s Caroline Duguay, single-serve capsules definitely suffer from an image problem rooted in insufficient public awareness of the larger issues at work.

"People often believe that packaging waste is the greatest environmental impact of coffee," Duguay says, "but most studies show that coffee farming and the processes involved with roasting and brewing represent the majority of a coffee cup's carbon footprint.

"One major benefit of portioned coffee is that it minimizes wasted resources," Duguay states. "Because our precision technology uses only the exact amount of coffee beans, water and energy needed to brew a single cup, it saves resources, reduces waste and minimizes the carbon footprint.

"Moreover, many studies that analyze the environmental impacts of coffee brewing methods have found that portioned products can be a more sustainable option than alternatives such as filter coffee," Duguay adds.

"When brewing filter coffee at home, people often use more resources than necessary by making make coffee in excess—using more grounds, water and energy than needed," she points out.

"There's also the energy used to run the hot-plates continusly to keep coffee warm," she notes, "and whatever is left over ultimately just gets lost down the kitchen sink."

made from it, which allows the company to contribute to the circular economy, keeping resources in use for as long as possible.

The user simply has to peel away the lid, remove the grounds for composting, and place the plastic pod in the recycling bin.

"Our commitment is recyclable and recycled: We want to see it go all the way through the system," says Oxender.

In order to ensure that these new pods can "go all the way through the system" and that they aren't too small to be captured and diverted to the appropriate area, the company completed field tests at recycling facilities across North America using RFID (radio frequency identification) technology to track its pods.

Following these tests, Keurig discovered that the pods are not too small and, on average, make it to the correct recycling container line 90 per cent of the time.

For its part, Montreal-headquartered **Nestlé Nespresso Canada** has based its capsule sustainability strategy on the inherent recyclability of aluminum used to manufacture its single-serve capsules.

"Not only is it the best material to protect the quality of our coffee," says the company's communications director Caroline Duguay, "but it is also infinitely recyclable.

"Indeed, 75 per cent of all aluminum ever produced is still in use today," says Duguay, adding the company goes through great lengths to collect all the coffee grounds during the recycling process to make nutrient-rich compost.

As she relates, "Our capsules are 100-percent recyclable, and we have put in place a local recycling system to collect capsules with minimal efforts for our consumers.

"They do not need to empty the capsule: they simply have to put the used capsules in a bag provided by Nespresso and return the bag via one of our different recycling options available across the country."

FEATHER IN THEIR CAP

Joining forces for the greater green cause

As leading Canadian suppliers of singe-serve coffee pods, PAC members **Club Coffee**, **Keurig**, **Mother Parkers** and **Nestlé Nespresso** are teaming up in a joint project aimed at enhancing the sustainability and environmental profile of this packaging format.

The key aim of this project will be to find practical answers to the following questions:

- What factors are involved in consumer decisions regarding disposal of coffee pods?
- What are the optimal ongoing ways for coffee brands to influence disposal outcomes?
- How do brands best communicate to consumers what they should

These options include a drop-off at one of 51 Nespresso-operated boutiques across Canada and, depending on availability, through municipal waste collection programs a special "red-bag" return program with **Canada Post**, and a special at-home recycling program administered by **TerraCycle Canada**.

"From then, Nespresso takes care of the rest," Duguay says. "The bags are collected and sent to our recycling partner, the coffee grounds are separated from the aluminum, and both are given a second life."

Adds Nespresso Canada president Luc Valleix: "We know how important it is to reduce our environmental footprint and provide simple and accessible recycling solutions for our Club Members.

"We are particularly proud to be able to offer an innovative recycling service in collaboration with local partners. "

As Valleix makes it clear, developing innovative packaging is only part of the big picture.

The bottom line is that consumers must dispose of the packaging properly in order to see the maximum environmental benefit and not contaminate the various wastestreams—namely by not putting compostable pods in a recycling bin and recyclable pods in a compost bin.

This requires a change in the behavior of the consumers, many of whom have grown accustomed to simply throwing the pods in the garbage.

Communication is naturally key to solving this dilemma, but spreading the word is not just the responsibility of the manufacturers alone.

"It's got to be a combined voice," says Oxender. "We are also reaching out to and very much willing to work with communities so that it's a common voice coming from the municipality and the brands about how to recycle the pods.

"And [we are] also open to working with other pod manufacturers to make sure we can minimize that confusion out there around 'What do I do with this pod?'

"Having common and very clear, succinct instructions will be key across the entire industry segment."

Rachel Morier, director of sustainability for **PAC Packaging Consortium**, agrees: "For single-serve coffee companies to make successful packaging that is sustainable, it's not theirs alone to solve.

"It requires cooperation from everyone. It requires cooperation from the consumer. It requires cooperation from waste handlers and municipalities."

Indeed, collaboration is critical, adds Club Coffee's Ackrill.

"We have learned much more than we expected about sustainable packaging solutions when we started down this path. One of the big lessons has been the value of collaboration with experts to find the best ways to meet the needs of our customers and consumers," she says.

"We all have a stake in finding better ways to address environmental concerns about waste."

Through collaboration, continued innovation and an increased emphasis on sustainable packaging, the single-serve coffee sector is making major strides in ensuring that its customers have a solution that they can feel good about—a solution that's better for their families and the environment.

do with their pods after use so that those consumers dispose of them properly?

Current thinking envisions the project as first analyzing the issues surrounding the disposal of single serve pods through secondary research and primary research, followed by application of that analysis to design a survey tool to test consumer understanding and decision-making regarding disposal of coffee pods.

Finally, to test different approaches to consumer education, such as in terms of package information, in-store information and information provided by compost manufacturers such as municipal solid waste programs.

The result would be a new body of applied and evidence-based knowledge about how best to inform consumers about product innovations and packaging options and how best to maximize appropriate disposal by consumers of compostable and recyclable products, when both are in use, in local solid waste programs.