Abstract

This opportunity is about optimizing the container used in transporting mushrooms from Noki Farms to Dufferin Grove Farmer’s Market. Noki Farms is an urban farm that grows and sells microgreens and unique, hard-to-find mushrooms. Once a week they drive approximately one hour [1] from their farm to sell their products at Dufferin Grove Market, which is a local organic farmer’s market located in Dufferin Grove Park, Toronto. To transport the mushrooms, Noki Farms loosely packs mushrooms in a plastic container within a regular cooler, with ice packs jammed between the plastic container and cooler wall [2]. This solution is problematic as it wastes space due to the double-container method and the need for ice packs, which limits the number of mushrooms that can be transported in a single cooler. Additionally, the current container does not necessarily provide an environment that protects the mushrooms’ optimal health. Mushrooms require a specific temperature, humidity and access to oxygen during transport to maintain their fresh, unblemished condition for sales to customers [2]. The irregular and varying shapes of mushrooms further complicate the packing process, hindering optimization. The mushrooms also cannot be packed so tightly that they become cracked, the container is a safe weight for them to carry, and the container can fit in an employee’s car. Together, these specific conditions create a significant transportation challenge for Noki Farms which has the potential to be addressed using the engineering design skills of first-year Engineering Science students.

The main stakeholder, Noki Farms, considers this a substantial issue for their business as it limits the number of mushrooms they can sell at the market, and is a source of annoyance for their employees [2]. Other indirect stakeholders such as the market manager, customers, other market vendors, grocery stores, and competing cooler companies are also impacted by this challenge.

Current designs on the market are not able to meet the needs of this opportunity because they excel in one requirement, such as cooling, but do not satisfy others, like optimizing space. The technology to satisfy each requirement individually does exist, such as coolers, humidifiers, and oxygen-controlling devices. The challenge is combining existing and creating new solutions tailored to Noki Farms’s unique needs.

References: