

Keep Rite® Produce Bags: An Innovative Export Idea for Nepal

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Intro to Agri-Foods

Introduction: Keeping fresh produce is an issue faced everywhere, but when food is difficult to come by and refrigeration isn't always an option, how do you keep fruit and vegetables fresh? A manufacturer in Canada is in the process of producing Modified Atmosphere plastic products. The product allows customers to keep their fruit fresh for a longer period of time, an issue that is currently being faced in third world countries. Nepal would be an example of a country that could use this product to increase their fruit and vegetable consumption. The product in mind is called Keep Rite® produce bags which have the ability to combat this problem with their unique patented gas transmission technology.

Product Description: Keep Rite® produce bags are reusable plastic bags made for the use of keeping produce fresh for a longer period of time (Keep Rite®, 2014). Fruits and vegetables are still living organisms that undergo cellular respiration even after they are harvested. This means that they are still



Photo 1: (Keep Rite, 2014) keeprite.com

exchanging oxygen for carbon dioxide just as humans exchange carbon dioxide for oxygen, the produce also releases water. The faster the exchange occurs, the faster the fruit or vegetable will rot. The produce bags regulate the levels of these gases and moisture to ideal amounts, specific to the type of produce, so that the life of the produce is lengthened. It is important that the various types of produce are packaged in separate bags because each type has its own specific rate at which it respire, and cross mixing inside the bags does not allow the bags to work ideally. Although, since there are many families of fruits and vegetables that have similar rates, it is possible to put similar products in the bags. This information is explained on the packages like for example, how all families of leafy greens can be stored in the 'lettuce' bags. "Each fruit and vegetable has a specific respiration rate, however, similar items

within a family of fruits and vegetables can have similar respiration rates. It is therefore possible to pack extended items within a specific family into the same Keep Rite® produce storage bags for a given product. Examples would be: most varieties of lettuce, spinach & parsley; colored bell peppers; berries; most varieties of tomatoes. The Keep Rite® storage bag performs best when packing only items the bags were designed for.” (Keep Rite®, 2014) Also, if one type of produce spoils quicker than the other, the bag would serve as a barrier to reduce the spread of ethylene which promotes decay. The bag acts like a barrier because the multiple types of produce are separated, which reduces the spread of ethylene. These bags are completely recyclable and can be reused up to ten times with a re-closable zipper for easy sealing (Keep Rite®, 2014). In third world countries, not limited to Nepal, there is always an issue of finding quality healthy food and then keeping it fresh long enough to consume it. This product allows customers to lengthen the ripening times of their fresh produce so that they may consume it for longer amounts of time and limit their food waste amounts.

Proven Results: Keep Rite® underwent tests done by an “independent food scientist” (Keep Rite®, 2014) and it was finalized that the consistency of results met the projected shelf life that is achieved through the use of these bags. Two major vegetables with great results included peppers and tomatoes, both of which are consumed in Nepal. The tomato tests concluded that “the fruit retained excellent color and texture and showed no signs of decay or moisture loss.” Meanwhile, Keep Rite® ensures a 14-16 day fresh length for peppers, even though the test results determined that the peppers would stay fresh 18 days, or even longer. The results on the tomatoes proved that the promoted length of 10-12 days is an understatement, as the tomatoes kept for 18 days and were still looking fresh. Although these bags are proven to work, there are several preventative measures that can help enable this product to work at its optimum level. Some measures that can be taken include improved sanitation and reducing bruising and abrasions by purchasing higher quality produce or simply removing the infected area. These three things help to enable the bags to work at their prime because of the way it reduces interference with

their gas transmission properties. When produce has bruising, abrasions or increased bacteria counts, the amount of oxygen it produces will increase, or in other words, its cellular respiration rate will increase. This, in turn, results in a faster decay of the flesh of the fruit or vegetable.

Product Origin & Patents: ULTRAPERF® Technologies Inc., the manufacturer of the patented technology that is the Keep Rite® product, is a Canadian company based out of Quebec.

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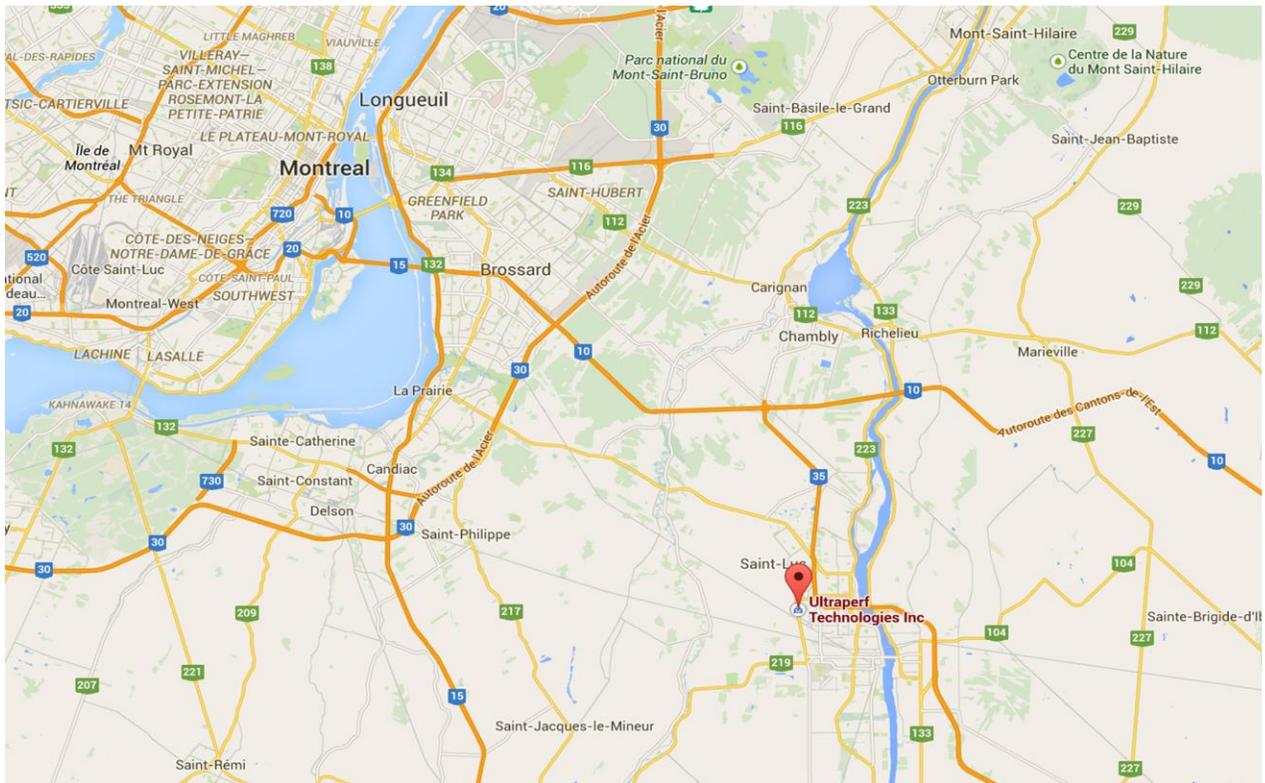


Photo 2: Google Maps

<https://www.google.ca/maps/place/Ultraperf+Technologies+Inc/@45.325869,-73.296584,15z/data=!4m2!3m1!1s0x0:0x8134a6f48ee375a875a=X&ei=zF5zVOPNIZL5yQS93YCYDQ&ved=0CHUQBlwCw>

The company itself is located in St-Jean-sur-Richelieu; a forty minute drive from Montreal, where Quebec's International Airport is located. ULTRAPERF® focuses their manufacturing on gas transmission plastic products for produce and have been shipping their products across the continent for ten years and is "constantly striving to develop new and unique products that extend the life, freshness and

quality of fruits and vegetables.” (ULTRAPERF®, 2014) ULTRAPERF® also produces other products like shrink films and various lids.

Product Formulation: This product regulates the levels of these gases and moisture to ideal amounts, specific to the type of produce because each type has specific respiration rates. This means that the permeability of the plastics must differ to allow variable amounts of oxygen, carbon dioxide, and water vapour through the plastic barrier. This permeability to change the gas levels inside the packaging is called Modified Atmosphere plastic, or MA plastic. Like any other type of plastic, these bags are composed of polyethylene or ethylene chains and are FDA approved. Plastics are made from crude oil, which, in Canada, can be found majorly in the western provinces. The crude oil is distilled and divided so that they can be polymerized to create ethylene and polyethylene which is the type of thermoplastic that the bags are most likely made out of.

Market Opportunity: This product is a human consumption related product and therefore would have a large market interest. As illustrated in Figure 1 (WFP, 2013), approximately 5% of an average Nepalese diet consists of fruits and vegetables, which doesn't include the major staple food, potatoes. Common fresh fruits and vegetables consumed by Nepalese people are pears, mangoes, apricots, cauliflower, peppers and beans. Of these six examples, the longest lasting is cauliflower with a fresh life of approximately two weeks whereas the softer ripe fruits would only last for two to five days. Of the approximately 2.78 million people (The World Bank Group, 2014), 480,000 live in an urbanized area and 2.29 million in rural areas. It is likely that the residents of the rural areas would be more likely to purchase this product because of their limited access to markets. Based off of this theory, the sales reach would be 83% of the total population of Nepal. Comparing rural and urban fruit and vegetable purchase/ grown rates in Figure 2 (WFP, 2013), the target market for the Keep Rite® Produce Bags would most likely be towards rural Nepal as their access to markets, or their necessity to visit marketplaces is sufficiently lower than those living in urban Nepal. For this reason, the special produce

that is purchased by the rural residents in market (produce that is not or cannot be grown at home) would need to last longer than their homegrown produce. If this product takes off while in Nepal, hopefully the eating habits will be able to change for at least a small amount of the population. Currently, the amount of fruits and vegetables consumed in the diet is approximately 5% whereas Health Canada recommends approximately 30%. The reason that Canadians can consume fruits and vegetables as a whole third of their diet is mostly income, lifestyle, and access. Fresh produce is an expensive food, and therefore, it's hard for many residents of third world countries to include this luxury as part of their diets. Also, our easy access to groceries makes it easy for us to eat well. Therefore, Keep Rite® produce bags would be a beneficial product to export to Nepal.

Figure 1: Source of food consumed, by urban/ rural source of varying foods

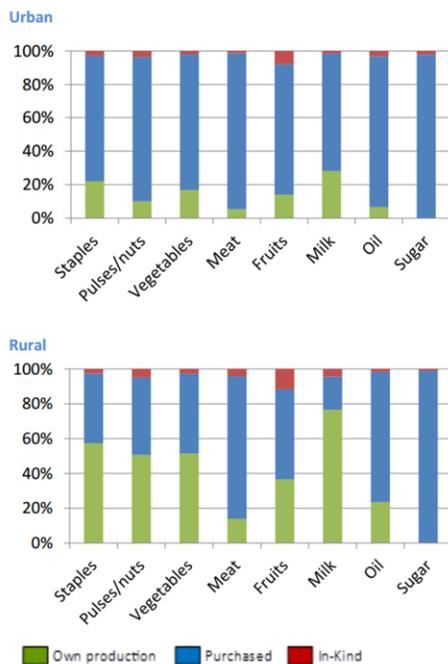
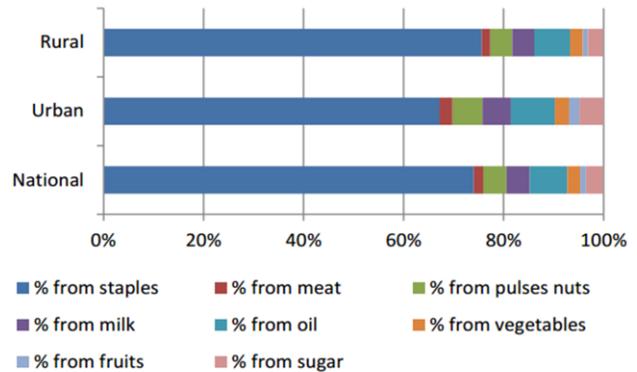


Figure 2: % of calories consumed from varying food groups, urban and rural, 2010/11



1. Potatoes were considered separately in this calculation as staples

Benefits to Canada: Other than the fact that Canadian manufacturers and companies names will be distributed worldwide, there will be substantial economic value of this export. Since the raw materials, like crude oil, needed to make this product are also located in Canada, the jobs in this sector would most likely see an increase. This export will increase current sales, requiring an increase in positions to be filled by the manufacturer, distributor and transportation sectors and an increased GDP. An increase in jobs means more money going towards the Canadian economy.

Intro to Nepal: Nepal, or the Republic of Nepal, is a landlocked country located in Southeast Asia between India and China and is divided into 75 Districts, 14 Zones, 5 Regions and 3 ecological regions. The country is also considered to be in the Himalayas which means it has contains a large mountain range and shares the highest mountain peak, Mt. Everest, with Tibet. Although Nepal has these high altitudes, called the highlands, it also has different ecological regions which are called the mid hill and Terai regions. To contrast the geography of the country, the highest altitude is Mt. Everest at 8848m while the lowest altitude is located in the Terai region and sits at 60m. The capitol of Nepal is Kathmandu, with a population of 2.5 million, sits at 1400m. The 27.8 million people are composed of 101 different ethnicities and 92 different spoken languages. Major ethnicities include Khas, Mangoloid, and mixed and the main language is Nepali. Nepal is considered a 'low income' country with over a quarter of the population below the poverty line. The currency in Nepal is the Nepalese Rupee which has an exchange rate to the Canadian Dollar that is currently at 88.52 NPR per CDN. A major industry in Nepal is agriculture, and approximately 75% of Nepalese people work in this sector which provides for almost a third of their GDP. Due to the close proximity to India, Nepal's greatest trade partner is India which accounts for 93.9% of Nepali exports and 79.4% of their imports. Other countries that Nepal does trade with include South Korea, Bangladesh and China.

Transportation: ULTRAPERF® Technologies Inc. is located in St-Jean-sur-Richelieu; a forty minute drive from Montreal, where Quebec’s International Airport is located. This close proximity to an international airport is a benefit when considering export and transportation options. The product would be transported by flight to the International Airport of Nepal which is in Kathmandu. From the capitol, the goods would be dispersed to local marketplaces where fruits and vegetables are also sold. The quote, Figure 3, displays the cost of shipping. If the dimensions of a pallet is 48” x 48” x 48” and a package of 15 bags is 11” x 15” x 0.25”, that works out to 4 x 3 x 192 packages/pallet or 2, 304 packages/pallet. The quote with A1 is for 4 pallets, which is 9,216 packages total. The total price of shipping divided by the total number of product works out to \$0.50/package in shipping. This, added to the original product price of approximately \$6.00 (for 15 bags) works out to \$0.43/ Keep Rite® Produce bag. Each bag as a label rating of 10 uses, which is then \$0.04 per use.

Figure 3: Quote by AI Freight Forwarding

A1 FREIGHT FORWARDING
 A1 Freight Forwarding Inc.
 171 Main Street South, Unit 6D, Newmarket, ON L3Y 3Y9, Canada
 Tel.: (800) 280-0277 info@a1freightforwarding.com
 Fax: (905) 581-0180 www.a1freightforwarding.com

QUOTE #82514

AIR FREIGHT
 FROM: Montreal (OUR WAREHOUSE)
 TO: Kathmandu - Nepal
 SHIPMENT TYPE: Commercial cargo

EMAIL ME THIS PRICE
 Enter your email address

Type	Qty	Dimensions	Weight
Pallet	4	48 x 48 x 48 in	500 lb

AIR FREIGHT RATE	3.50 \$ CAD / KG ALL IN
ACTUAL WEIGHT	906.00 KG
VOLUME WEIGHT	1208.18 KG
CHARGEABLE WEIGHT	1208.18 KG

AIR FREIGHT	4228.63
TERMINAL & SCREENING FEE	286.64
PROCESSING FEE	75.00
EXPORT DECLARATION	0.00
SURCHARGES	0.00
TOTAL:	4590.27 \$ CAD

Tariffs and Trade Barriers: Nepal has an average tariff of 11% (International Economics & Trade in South Africa, 2014). The price listed in the paragraph above displays what the price of the product would be, when it first arrives in Nepal, and excluding tariffs. If the total was \$6.00, an 11% increase would make the total cost \$6.66, or \$0.44 per bag this increase does not change the price per bag very much, as shown. This price is mildly high for this region but definitely has potential.

Benefits to Nepal: The Keep Rite® bags will produce benefits in Nepal as they are able to reduce two issues facing Nepalese people: the expenses on fresh produce and the amount of waste of fresh

produce. Since these bags are able to keep fruits and vegetables fresh longer, they make a break in the continuous negative cycle of waste and purchasing of fresh produce. “Keep Rite® produce storage bags will help reduce the amount of spoiled fruits and vegetables thrown away each week and save consumers a significant amount of money each year! Keep Rite® produce storage bags will also enable consumers to buy larger quantities of fruits and vegetables when on sale, again saving considerable amounts of money!” (Keep Rite®, 2014)

Competition Products: Comparing Keep Rite® to other products that are Modified Atmosphere plastics such as EvertFresh or Debbie Meyer bags, it is clear that the Canadian made, Keep Rite® products are the least expensive option. Debbie Meyer bags currently sell for \$9.99 per 10 bags (Bed Bath and Beyond, 2014), which is almost \$1.00 per bag. Comparing this price to the Keep Rite® bag’s price of \$0.44, this is the better buy by a difference of almost \$0.60 per bag without even including shipping costs. There is not only competition between these bags though. Similar products include ProduceSaver by Rubbermaid®, or regular cheap plastic bags. The Rubbermaid® ProduceSaver products are containers that keep produce fresh as well. Although this product can be reused many more times than any plastic bag, they are much more expensive at over \$10.00 for 3 containers (RubberMaid, 2014), and more difficult to ship because of their size. This shipping problem would also make the price increase more. Simple plastic bags may also be a competition because they serve the same purpose for holding and dividing fruits. They are cheaper and are currently being imported from India. The reason that Keep Rite bags would probably sell better is because of their functionality and benefits. Also, the fact that they are completely recyclable would help as a sales pitch in Nepal.

Issues/ Concerns with this Product: With a quarter of Nepalese people making less than \$1.25US per day (124.30 Rupee) and almost 30% of people considered moderately to severely underweight (UNICEF, 2013), it is unimaginable to have to throw away fresh produce. For this reasons alone, Keep Rite® produce bags would be able to make a contribution to helping with these problems. A product of this

type would be highly beneficial to the people of Nepal as it has the ability to increase the amount of fresh produce being consumed by the customer, while decreasing the amount of money essentially going straight to the trash when fruits and vegetables are thrown away. The issue is that the price of the bags is just a bit too high for the average Nepalese person to purchase. Just one package (one package contains 15) of these bags would be worth almost 5 days of work. If Canadian manufacturers could produce these bags at a cheaper price without losing quality, this would make this product much easier to sell. There are some other issues that may be faced when exporting this product. This includes the price or availability of transportation when the bags are being distributed across Nepal. Another concern is the garbage that would be produced with this product. Although the bags are completely recyclable, the recycling facilities in Nepal are not the same as they are in Canada. Even in the Nepali Times, they describe the garbage problem that occurs there. "It is everywhere, stuffed in plastic bags and dropped in drainage ditches or piled high in empty lots" (Nepali Times, 2014). Therefore, the effectiveness of their recycling programs are probably not the greatest and plastic bags would most likely not be an environmentally friendly option to export there.

Conclusion: Overall, the Keep Rite® Produce Bags would be a beneficial product to ship to Nepal. With proven shortened ripening times, majorly rural, but also some urban Nepalese people will be able to keep their produce for longer amounts of time. "Keep Rite® produce storage bags will keep all of your fresh fruits and vegetables fresher longer and save consumers a significant amount of money each year by reducing the amount of spoiled fruits and vegetables thrown away each week. Keep Rite® produce storage bags will extend the life of your fresh fruit and vegetables by days. Keep Rite® produce storage bags can be reused up to 10 times. We all want to keep fruits and vegetables fresher longer. Now you can with Keep Rite® produce storage bags." (Keep Rite®, 2014) Although there are several negativities and issues with this product, and also some competition, hopefully the people of Nepal will be able to reduce their food waste and improve nutrition habits with Keep Rite® produce bags.

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