

The Food Mail Pilot Projects

Achievements and Challenges

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Although there are many remaining challenges, we remain confident that our working relationship with all our partners in the public and private sector will enable us to meet these challenges and ultimately declare these projects to have been successful in achieving nutritionally significant changes in food consumption in these communities.

We sincerely hope that, in compiling the information in this report and through our role in the implementation of the projects, we have also contributed to the success of the projects and have provided an accurate picture of the achievements of the projects to date and the challenges that lie ahead.

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Executive Summary

INTRODUCTION

The Northern Air Stage Program, commonly known as the Food Mail Program, was initiated during the late 1960s. In 1986, Canada Post first received funding to subsidize the transportation of parcels by air to isolated communities that cannot be accessed by surface transportation year-round. The program currently applies to nutritious perishable foods, some non-perishable food, and essential non-food items. Food items of little nutritional value, alcohol, and tobacco are not eligible for the program.

Indian and Northern Affairs Canada (INAC), with funding from Health Canada’s Food Safety and Nutrition Program initiatives, launched pilot projects in Kugaaruk (Nunavut), Kangiqsujuaq (Nunavik), and Fort Severn (Ontario) between December 2001 and January 2003. The overall purpose of the Food Mail Pilot Projects was to reduce the cost of the most important nutritious perishable foods and increase nutrition education and the retail promotion of healthy foods. By making a healthy diet more affordable and raising the awareness of healthy food choices, the projects were intended to improve nutrition and health in isolated northern communities. The rate for shipping “priority perishable” foods (fresh and frozen fruits and vegetables, frozen juice concentrate, eggs, milk, cheese, and yogurt) to the pilot communities was reduced. The pilot projects also included consumer education (e.g., cooking classes, taste testing), the retail promotion of healthy foods (e.g., promotional items, price labelling), and efforts to improve food quality.

The primary project partners at the national and provincial/regional/territorial levels included INAC, Health Canada, the Government of Nunavut (Department of Health and Social Services), the Nunavik Regional Board of Health and Social Services, the Ontario Ministry of Health and Long-Term Care, and Canada Post. The Government of Nunavut, the Nunavik Regional Board of Health and Social Services, and the Ontario Ministry of Health and Long-Term Care contributed financially to the nutrition education component of the pilot projects in Kugaaruk, Kangiqsujuaq, and Fort Severn respectively. Canada Post ensured that only the Priority Perishable foods were sent to the pilot communities at the reduced shipping rates.

PROGRAM DATA

This report provides an overview of the situation before the pilot projects began, what they were intended to accomplish, their achievements to date, and the ongoing challenges they face. Program data used to compile the overview included:

- ◆ Baseline data related to current food consumption habits, food purchasing, and food security were collected in all three pilot communities prior to the implementation of the shipping rate reductions.
- ◆ A modified household survey was conducted in each of the three pilot communities to assess the impact of the pilot projects on the food purchasing patterns and food security status of households since their initiation.

- ◆ An interim evaluation of the Food Mail Pilot Projects provided feedback from key project stakeholders and community members on the implementation of the projects' key components (food price reduction, food quality and availability, retail promotion, and consumer education), community awareness, and project outcomes and impacts.
- ◆ A local price and quality surveyor, in each of the pilot communities, was to conduct a price survey once a month. A quality survey was also to be conducted once a month on a day when the shelves in the grocery store(s) were stocked. In addition, quality surveys were to be completed on six consecutive days (Monday through Saturday) once every two months.
- ◆ Price monitoring data collected before and during the implementation of the pilot projects by INAC officials during community visits.
- ◆ Information collected by Canada Post about the volumes of Priority Perishable foods and other perishable foods shipped to each community, to retailers, and individuals (personal orders) in total.
- ◆ Feedback received from three nutrition experts regarding the effectiveness of the various components of the Food Mail Pilot Projects, the interpretation of shipping volumes, and the significance of observed changes with respect to diet and health.

ACHIEVEMENTS TO DATE

The achievements of the pilot projects discussed in this report are as follows:

- ◆ **Price of Priority Perishable Foods** – For the most part, the prices of priority perishable foods were reduced by at least the amount of the rate reduction. The prices of these foods have remained lower in the three pilot communities than in stores belonging to the same retail organization in nearby communities using the same supply chain.
- ◆ **Food Quality, Availability and Variety**
 - Quality** – Household survey respondents and focus group participants indicated that the quality of some priority perishable foods (e.g., fresh fruits and vegetables) had improved since the implementation of the pilot projects.
 - Availability** – The majority of household survey respondents in Kugaaruk and Kangiqsujuaq reported that fresh fruits and vegetables were more available since the initiation of the pilot projects while the respondents in Fort Severn felt that there had been no change in their availability. Overall, focus group participants agreed with this assessment.
 - Variety** – In general, the findings of the second household survey indicate an improvement in the variety of fresh fruit and vegetables available always or most of the time in all three pilot communities.

- ◆ **Food Purchasing** – In all three pilot communities, higher purchases of specific fresh fruits and vegetables were reported for the four weeks prior to the second household surveys than before the implementation of the pilot projects. Furthermore, there was an increase in all three communities in the percentage of community members buying specific fresh/frozen fruits and vegetables, milk, and eggs.
- ◆ **Shipments of Priority Perishable Foods** – There has been an overall increase in the volume of shipments of the priority perishable foods to Kugaaruk and Kangiqsujaq but little evidence of change in shipments to Fort Severn since the start of the pilot projects.
- ◆ **Consumption of Priority Perishable Foods** – The pilot communities were, as a whole, consuming more priority perishable foods since the percentage change in the amount of food shipped can be used as a proxy for the percentage change in the amount of food consumed.
- ◆ **Stakeholder Satisfaction** – Overall, the focus group participants and key informants were satisfied with the Food Mail Pilot Projects.

Challenges

In addition to achievements, the following challenges faced by the pilot projects were identified:

- ◆ **Food Security** – The level of food insecurity in all three communities was extremely high. However, food security improved among adults in Kugaaruk and among households with children in Fort Severn. There was a significant increase in food insecurity observed in Kangiqsujaq which appears to be related to environmental changes outside the scope of the pilot projects (e.g., access to country food locally).
- ◆ **Community Awareness** – Overall, the participating communities' awareness about the Food Mail Pilot Project was limited. However, household survey data indicate an increase in the number of Inuit households that reported using the Food Mail Program for personal orders in both Kugaaruk and Kangiqsujaq. The majority of the focus group participants were not familiar with the retail promotion items distributed to the communities to raise awareness of the Food Mail Pilot Project and the importance of healthy nutrition.
- ◆ **Food Transportation, Handling and Storage** – The retail environment is an ongoing challenge for the Food Mail Pilot Projects. The focus group participants in Kugaaruk and Fort Severn were not satisfied with the overall quality of fresh fruits and vegetables. In contrast, the focus group participants in Kangiqsujaq were satisfied with the quality of fresh produce available in their community.

- ◆ ***Price Labelling*** – The focus group participants agreed that price labelling in Kugaaruk and Fort Severn was poor. And, while it had improved at the Co-op store in Kangiqsujuaq, it was inconsistent.
- ◆ ***Consumer Education*** – While a variety of consumer education activities were offered through the pilot projects, it was only somewhat effective in improving consumer knowledge. Overall, the implementation of this component was limited. Nutrition education can be an important component of the pilot projects if practical, appropriate, culturally relevant and sensitive, and inclusive of country foods.
- ◆ ***Assessing Individual Project Components*** – It is not possible to isolate the impact of measures such as the postage rate reduction, nutrition education, and retail promotion. It is only possible to measure the combined effects of all components. In all likelihood, however, the rate reduction had the greatest impact.
- ◆ ***Retail Sales*** – It is not possible, at this time, to create reliable and useful indicators of sales trends.
- ◆ ***Attributing Behaviour Change*** – While the documented changes in shipments and purchasing in the pilot communities can not be conclusively attributed to the Food Mail Pilot Projects, available evidence suggests that the pilot projects have had a positive impact on diet.

INTRODUCTION

In launching Food Mail Pilot Projects in three communities between December 1, 2001 and January 1, 2003, Indian and Northern Affairs Canada (INAC) and Health Canada embarked on a course that was designed to lead to comprehensive and effective solutions to the longstanding problems of food security and nutrition in isolated northern communities. By demonstrating that nutritionally significant changes in food consumption could be achieved through a multi-pronged, collaborative approach with other levels of government and the private sector, it was anticipated that governments at all levels would have the evidence needed to make decisions about the future of the Food Mail Program and other programs and policies that address these underlying issues. In agreeing to take part in the pilot projects, the three participating communities were well aware of, and willingly accepted, the burden of responsibility for paving the way for 135 isolated communities and over 100,000 people in Northern Canada to benefit from such an approach.

The purpose of this report is to provide an overview of the situation before the pilot projects began, what they were intended to accomplish, their achievements to date, and the ongoing challenges they face. Community comparisons, therefore, are inevitable. It is through an understanding of why the baseline situation, as well as the implementation and impacts of the pilot projects, have differed in these three very different communities, that we come to have a better understanding of how this approach may work with varying degrees of success across the isolated North and of further actions that could be taken to ensure that the full potential of the projects is reached. None of the participating communities suggested that they did not wish such comparisons to be presented. In fact, they expressed a keen interest in knowing how circumstances in their communities differ from those in the other pilot communities, since they have much to learn from each other.

It is hoped that both the leadership and the general population in these communities understand that, in pointing out differences in the apparent success of the three pilot projects, the project sponsors are not criticising the population for the food choices they make at the store and at home. Like those in southern Canada, people who live in the North make food choices based on a number of factors including what is available for purchase, price, quality, advertising and promotion, personal preferences, convenience, time available for food preparation, disposable income, knowledge of healthy foods and foods of little nutritional value, and food preparation skills. Many circumstances must change, therefore, for major changes in food consumption to take place. Such changes typically take much longer to occur than 18 months, which was the planned duration of the pilot projects. Retailers, airlines, and wholesalers also face an enormous challenge in making good-quality, healthy food available at all times at prices that Northerners can afford while still making a profit, which is their primary motive, notwithstanding the other objectives of co-operatives involved in the retail sector.

In presenting to the public the evidence on the impact of the projects to date, INAC and Health Canada hope to work with their partners, retailers, and the pilot communities to develop a plan of action to achieve greater success if these projects continue.

While most readers of this report will be familiar with the Food Mail Program and the pilot projects, some background information is presented so that those less familiar with the projects can better understand the achievements and challenges outlined in this report.

BACKGROUND

The Food Mail Program

INAC provides funding to Canada Post to cover part of the cost of shipping nutritious perishable food and other essential items by air to isolated communities in the three territories and the northern parts of six provinces. About 17.8 million kilograms of goods were shipped under the program in 2007-2008. Eighty-one communities with 72,000 people depended heavily on the program for their perishable food supply. Most shipments go to retailers, but other businesses and consumers also receive shipments. The funding for service provided in 2007-2008 was \$45.2 million. Because of increases in the volume of shipments and fuel costs, expenditure on this program has increased by an average of 13% per year since 1998-1999, while volumes have increased by an average of 9% per year.

The objective of the Food Mail Program is to reduce the cost of nutritious perishable food and other essential items, thereby promoting the consumption of nutritious food and improving nutrition, health, and well-being in communities that lack year-round surface transportation.

The same rate (\$0.80 per kilogram plus \$0.75 per parcel) is charged for shipping perishable food to all destinations from designated entry points, except for four communities served from Inuvik which have a lower rate (\$0.30 per kilogram plus \$0.75 per parcel) to offset the cost of trucking food to Inuvik, the food entry point for the Beaufort-Delta region. In order to encourage the use of the sealift, barge, and winter roads for non-perishable goods, higher rates are charged for non-perishable food and non-food items: \$1.00 per kilogram plus \$0.75 per parcel in the provinces and \$2.15 per kilogram plus \$0.75 per parcel in the territories. These rates have not increased since 1993.

Food Mail service has existed in some regions in Northern Canada since the late 1960s. However, it was not until 1986 that the Government of Canada started making payments to Canada Post specifically for this service. These payments were managed by the Treasury Board Secretariat until responsibility for the program was transferred to INAC in 1991, based on a review of the program led by INAC that involved extensive public consultations. The policy criteria established in 1991 – a focus on nutritious perishable food shipped to all isolated communities at a uniform rate, foods of little nutritional value not subsidized, and non-perishable food and non-food items eligible for shipment at higher rates – continue to apply to this program.

In 1992 and 1993, nutrition surveys were conducted in six Inuit communities (Pond Inlet, Arctic Bay, Repulse Bay, Coral Harbour, Gjoa Haven, and Nain) and two First Nation communities (Fort Severn and Davis Inlet) that used the Food Mail Program. As well, the nutrition surveys conducted as part of the 1992 Santé Québec Health Survey among the Inuit of Nunavik were analysed from a Food Mail perspective. Updated results of these surveys were published in 2002.¹ Public consultations on the program were held in 1994 and 1996, based on a published discussion paper² and a proposal for refinements to the program.³ In August 1996, certain convenience perishable foods (e.g., fried chicken) and non-essential non-food items were removed from the program, as were fruit drinks and sweetened juice in January 2004.

A program review initiated in 1996-1997 by the Departmental Audit and Evaluation Branch of INAC included nutrition surveys in Pond Inlet and Repulse Bay. The 24-hour diet recalls conducted among Inuit women of childbearing age did not demonstrate a statistically significant increase in the consumption of nutritious perishable foods between 1992 and 1997 in either community.⁴ The only significant change in nutrient intake was an increase in vitamin A in Repulse Bay. The mean vitamin A intake from nutritious perishables increased, but the change was not statistically significant. However, evidence from the food frequency questionnaires did suggest a significant change in food consumption among women in Pond Inlet. For example, many more women reported consuming several types of fruit and vegetables over the previous month in 1997 than in 1992. The large increase in Food Mail shipments since 1991 leaves no doubt that food consumption patterns have changed dramatically, but the impact on nutrition and health has not been established.

The Food Mail Program, particularly as it applies in the territories, was radically changed between 1991 and 1993. The rate charged for shipping perishable food to the Baffin Region was reduced from \$2.10 per kilogram to \$1.50 per kilogram plus \$0.75 per parcel in October 1991, then to \$1.20 per kilogram plus \$0.75 per parcel in October 1992 and finally to \$0.80 per kilogram plus \$0.75 per parcel in July 1993. Food Mail service was also extended to isolated communities in the Kivalliq and Kitikmeot Regions, the Northwest Territories, Yukon, and Labrador in October 1991. Rates for perishable foods, as well as for non-perishable food and non-food items, were increased in the provinces over this period, so that a uniform rate for perishable food was in place by July 1993. The only exception made since then was the introduction of a reduced rate for communities served from Inuvik in January 2001.

Origin of the Food Mail Pilot Projects

The report on the nutrition surveys conducted in Pond Inlet and Repulse Bay, which was published in 2001, recommended “consideration of a more highly focused approach that would include a lower postage rate for perishable fruits and vegetables and dairy products and an assessment of the impact of such a change on food costs and nutrient intake” and “joint initiatives with federal, territorial and provincial governments as well as industry to support the program through culturally

appropriate, practical and effective long-term nutrition education programs integrated into a program for healthy living.”⁵

The funding required to implement the pilot projects and to assess the impact of a multi-pronged approach to the nutrition and food security issues facing isolated communities was provided in Health Canada’s Food Safety and Nutrition Program initiatives announced in the February 1999 Budget. However, funds did not become available, effectively, until 2000-2001. Two provinces and two territories (the largest users of Food Mail) were invited to participate in the pilot projects in September 2000. The Department of Health and Social Services, Government of Nunavut (GN), the Nunavik Regional Board of Health and Social Services (NRBHSS), and the Ontario Ministry of Health and Long-Term Care (OMHLTC) agreed to participate in and fund the nutrition or consumer education component of the projects.

Project Goals and Objectives

The goal of the Food Mail Pilot Projects was to provide new knowledge about the effectiveness of a variety of nutrition education, retail promotion, and transportation subsidy interventions intended to increase the consumption of certain nutritious perishable foods and to decrease the consumption of prepared convenience foods and foods of little nutritional value. In turn, this would enable governments to make better decisions on matters related to food security and nutrition in isolated northern communities including, specifically, improvements in the Food Mail Program.

In the pilot communities, the objectives of the pilot projects were to:

- ◆ increase the knowledge and skills of community members regarding healthy eating, food purchasing and food preparation;
- ◆ change (improve) the food purchasing behaviours of community members;
- ◆ change (improve) the diet or nutrition of community members, e.g.,
 - more vitamin A, vitamin C, folate, calcium, fibre
 - less fat, saturated fat, sugar;
- ◆ reduce the price of key foods, designated as “Priority Perishable” foods;
- ◆ improve the quality of healthy foods in the stores;
- ◆ improve the availability of priority perishable foods in the stores;
- ◆ improve the variety of fresh fruits and vegetables in the stores; and
- ◆ improve food security which, according to the definition adopted by Canada and other countries at the World Food Summit in 1996, “exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.”

Selection of the Pilot Communities

Different procedures were used to select pilot communities in the three jurisdictions that agreed to support a pilot project. In Nunavut, Kugaaruk was selected based on the availability of a Regional Nutritionist (a situation which unfortunately changed just as the project began), population size, and location. In Quebec, three communities that met specific criteria, including population size and the number of stores, were approached. One of the three communities, Kangiqsujuaq, expressed an interest in having a pilot project by the required date. In Ontario, Fort Severn approached INAC about the possibility of having a pilot project shortly after the Kugaaruk project was announced. Fort Severn was an ideal pilot site because of the nutrition survey conducted in 1992 and because of the consultations with the community on the Food Mail Program in 1990 and 1995. Therefore, no other communities in Ontario were approached as possible sites. However, the OMHLTC and regional Aboriginal organizations (Nishnawbe Aski Nation and Keewaytinook Okimakanak) were consulted and agreed with the choice of Fort Severn. The councils in all three communities embraced the pilot projects enthusiastically.

Food Supply System in the Pilot Communities

Kugaaruk is located approximately 1,300 kilometres northeast of Yellowknife. The Koomiut Co-op, the only grocery store in the community, obtains its perishable food from suppliers in Edmonton. Orders are placed through Arctic Co-operatives Ltd. in Winnipeg. Some food suppliers in Yellowknife also ship food directly to individuals in Kugaaruk. Kugaaruk is the most remote community in the Kitikmeot Region in terms of the supply of both perishable and non-perishable food. Perishable food is trucked from wholesalers in Edmonton to Yellowknife, the food entry point for food shipped to this community under the Food Mail Program by First Air. Non-perishable food arrives once a year in September on the sealift from Montréal.

Kangiqsujuaq is located approximately 1,700 kilometres north of Montréal. There are two grocery stores in Kangiqsujuaq, the Wakeham Bay Co-operative store and the Northern store owned by the North West Company based in Winnipeg. The stores obtain their perishable food from suppliers in Montréal, Val-d'Or, and Rouyn-Noranda. La Fédération des coopératives du Nouveau-Québec (FCNQ) serves as a wholesaler for the local co-op, prepares the orders, and arranges for trucking from Baie-d'Urfé to Val-d'Or, the food entry point for Food Mail service to Nunavik communities. Food eligible for shipment under the Food Mail Program is deposited with Canada Post in Val-d'Or, then trucked 856 kilometres to La Grande and flown approximately another 950 kilometres from La Grande to Kangiqsujuaq by Air Inuit. Some food suppliers in Val-d'Or and the Montréal area also ship food directly to individuals in Kangiqsujuaq.

Fort Severn is located approximately 850 kilometres north of Thunder Bay. The Northern store and the Washaho General Store (a private retailer when the pilot project began, but now owned by the Fort Severn First Nation) obtain their perishable

food from suppliers in Winnipeg. Some Winnipeg food suppliers also ship food directly to individuals in Fort Severn. Fort Severn is the most remote community in Ontario in terms of the supply of both perishable and non-perishable food. Perishables are trucked approximately 700 kilometres from Winnipeg suppliers to Pickle Lake, the food entry point for food shipped to this community under the Food Mail Program. Fresh and frozen food is normally received once a week. Non-perishable food is re-supplied once a year on the barge service provided by Moosonee Transportation Limited from Moosonee. A winter road from Gillam, Manitoba, via Shamattawa, is normally in service for a few weeks and is also used for the re-supply of staple food items.

The three pilot communities have had very different histories with respect to Food Mail service which began in Kugaaruk in 1992, in Kangiqsujuaq over 35 years ago, and in Fort Severn in the 1970s.

Community Profiles

The three pilot communities are all small, isolated Aboriginal communities with a young population, low education levels, low incomes, high food costs, a shortage of jobs, and high reliance on government transfers, which provided about 20% of total income in 2000 according to the 2001 Census (Table 1). About 95% of the population of Kugaaruk and Kangiqsujuaq is Inuit, while everyone enumerated in the Cree community of Fort Severn in the 2001 Census reported North American Indian “identity.”

Table 1. 2001 Census Profile of the Aboriginal Identity Population in Pilot Communities

Census Characteristics	Kugaaruk	Kangiqsujuaq	Fort Severn
Total Census population	605	536	401
Aboriginal identity population	575	510	400
North American Indian (single response)	0	0	400
Inuit (single response)	570	505	0
Percent under 15 years of age	47.8%	42.2%	37.5%
Median age (years)	15.8	19.4	22.4
Percent of the population age 25 and over with less than a high school graduation certificate	60.0%	68.4%	55.6%
Worked full year fulltime in 2000 (number and percent of population 15 and over)			
Male	45 (28%)	45 (29%)	35 (29%)
Female	25 (18%)	30 (21%)	25 (20%)
Total	70 (23%)	75 (25%)	55 (22%)
Average earnings of those who worked full year, fulltime in 2000			
Male	\$40,146	\$32,823	\$32,059
Female	\$26,678	\$30,490	\$25,205
Total	\$35,336	\$31,890	\$29,122
Employment rate			
Male	59.4%	58.1%	45.8%
Female	50.0%	62.1%	44.0%
Total	56.7%	59.3%	44.0%
Unemployment rate	12.8%	16.7%	21.4%
Households	105	100	100
Median household income in 2000	\$44,800	\$43,328	\$33,392
Composition of total income			
Earnings	70.7%	80.3%	78.3%
Government transfers	20.9%	18.7%	20.8%
Other money	7.4%	0.2%	1.0%
Percent of adults who say their health is:			
Excellent or very good	60%	55%	NA
Good	37%	34%	
Fair or poor	NA	10%	
Percent of adults with one or more long-term health conditions diagnosed by a professional	13.3%	32.1%	NA
Source: Statistics Canada, 2001 Census of Canada. Data on health are from the 2001 Aboriginal Peoples Survey. No data for Fort Severn are available from that survey.			

Only 20% to 25% of Aboriginal people in the pilot communities worked fulltime in 2000. There were fewer jobs in Fort Severn. Kugaaruk had the youngest population, with about half the Inuit population under 15 years of age. The median Aboriginal household income in 2000 was about one-third higher in Kugaaruk and Kangiqsujaq than in Fort Severn, but differences in after-tax income would be less since the income earned by status Indians on Reserve is not taxed. Income data, however, are misleading without taking into account housing costs as households on social assistance in Kugaaruk pay only a nominal rent, much less than in Kangiqsujaq, and rents paid by those earning money in these communities also differ.

Self-rated health was better in Kugaaruk than Kangiqsujaq according to the 2001 Aboriginal Peoples Survey. One third of adults in Kangiqsujaq reported a long-term health condition, compared to 13% in Kugaaruk. However, the picture of health from the Aboriginal Peoples Survey was much more positive than that reported in the baseline surveys conducted just before the pilot projects began.

PILOT PROJECT MODEL AND PERFORMANCE MONITORING FRAMEWORK

Pilot Project Activities (“Interventions”)

The Food Mail Pilot Project began in Kugaaruk on December 1, 2001, in Kangiqsujaq on July 1, 2002, and in Fort Severn on January 1, 2003. These were the effective dates of the rate reduction for shipping priority perishable foods. Other components of the pilot projects were implemented after a period of several months. The interventions designed to achieve the goals and objectives identified above, lead responsibilities, and project partners were as follows:

Interventions/Activities	Lead Responsibility	Other Partners
Rate reduction (\$0.50 per kg) for shipping priority perishable foods to pilot communities	INAC	Canada Post
Food Mail Quality Assurance Initiative	Canada Post	Air Cargo Transportation Research Group, Laval University INAC
Retail promotion of healthy foods	Retailers	INAC
Consumer education	GN NRBHSS OMHLTC	Health Canada
Country food accepted as priority perishable food in Cambridge Bay for shipment to Kugaaruk	INAC	Canada Post

A commitment was made to each community to continue the pilot projects for a minimum of 18 months. However, the projects were extended to ensure adequate time for all components to be fully implemented, for behavioural changes to occur, and for an adequate evaluation of their impact.

Rate Reduction

In all pilot communities, the rate for shipping the following priority perishables was reduced to \$0.30 per kilogram plus \$0.75 per parcel: fresh milk (excluding chocolate milk), UHT milk, buttermilk, cheese, processed cheese, cottage cheese, yogurt, yogurt drinks, powdered milk, fresh vegetables, frozen vegetables (excluding French fries and similar potato products), fresh fruit, frozen fruit, frozen juice concentrate, and eggs. In Fort Severn, at the request of the council, cook-type cereals and whole wheat bread were also included. In Kugaaruk, also at the request of the council, country food was designated as a priority perishable food, eligible for shipment from Cambridge Bay at the reduced rate, effective January 2003. These foods are a rich source of nutrients for which a large percentage of the pilot populations have inadequate levels.

Food Mail Quality Assurance Initiative

The Food Mail Quality Assurance Initiative was not restricted to the pilot communities. Developed initially to deal with serious food quality problems in communities on the Labrador coast, this initiative included the development of guidelines for facilities, handling, packaging, sanitation and inspection, and related training for wholesalers, retailers, airlines, and Canada Post officials involved in the Food Mail system. This initiative has been implemented in Yellowknife and Val-d'Or but not, at this point, in Pickle Lake.

Retail Promotion of Healthy Foods

In proposing the Food Mail Pilot Projects to the communities, it was made clear that retailers would be expected to do more to promote healthy foods in general, and priority perishable foods in particular. At a minimum, this would include passing the savings on the transportation of these foods to their customers – something that the retailers had no hesitation in committing to do. There were also expectations that the retailers would order enough food to meet the increased demand for these foods at reduced prices, that priority perishable foods would be identified as such, that the prices of these foods would be clearly posted, and that greater attention would be paid to display and sanitation to encourage people to buy these foods.

To assist retailers in this regard, INAC designed and provided the following promotional materials to the retailers at no cost:

- ◆ three different designs of colourful posters in English, French, and the relevant Aboriginal languages, encouraging shoppers to “look for the Food Mail symbol to help you make the best choice;”

- ◆ shelftalkers with an adhesive backing, displaying the Food Mail symbol and the same wording as the posters, produced in the above languages, that retailers were instructed to use to identify the priority perishable foods; and
- ◆ cards that could be dangled or set up as a tent (danglers), with the same wording, produced in English, French, and the two dialects of Inuktitut, but not in Cree.

Consumer Education

The consumer education component was carried out by a part-time local Food Mail Pilot Project Co-ordinator hired by the Hamlet, Northern Village, or First Nation and supported by a nutrition specialist employed or contracted by the Government of Nunavut, the NRBHSS, or FNIHB. Funds to pay the local project coordinators and to purchase necessary supplies were provided by the three participating jurisdictions through contribution agreements.

This component included a wide variety of activities, with the mix and intensity varying significantly among the three sites, based on plans developed by staff from the GN, the OMHLTC, Health Canada, and a contract dietitian working on behalf of the NRBHSS, along with local residents and health professionals.

The consultant dietitian provided training to the project coordinator in Kugaaruk as well as ongoing support until the end of March 2003 when the regional nutritionist took over the responsibility of providing nutrition expertise and support. The regional nutritionist visited Kugaaruk four times during 2003 for a total of 16 days spent in the community. The types of consumer education activities offered to the end of March 2004 included taste testing at the grocery store and cooking classes. As well, the project coordinator provided healthy snacks and nutrition activities at the mother and child clinics and daycare and organized a “healthy foods” poster contest for school-aged children.

The first coordinator for the Food Mail Pilot Project in Kangiqsujuaq was hired and participated in a training session offered by the consultant dietitian in June 2003. However, she quit working with the pilot project in mid-July. A new coordinator received training from the consultant dietitian in early October 2003 and again in mid-January 2004. Altogether, the consultant dietitian spent eight days in the community prior to the end of March 2004. The types of consumer education activities offered in Kangiqsujuaq included weekly taste testing at both grocery stores and cooking classes. As well, the project coordinator talked about the Food Mail Pilot Project and healthy foods and nutrition on the radio and talked about healthy eating and cooked with school children (Kindergarten to Grade 5) once a week.

The Fort Severn project coordinator participated in a total of five training sessions offered by the community nutritionist between August 2003 and February 2004 completing the training and requirements to be certified as a Community Food Educator. Altogether, the regional nutritionist spent 17 days in the community before the end of March 2004. The types of consumer education activities offered in Fort Severn included taste testing at the Northern store, community cooking classes, and

traditional teachings. As well, the project coordinator conducted school visits during which she introduced Canada's Food Guide and talked about healthy eating. She also prepared a different nutrition-related message each month for the community channel.

Performance Monitoring Framework

The interventions, anticipated impacts and outcomes, information sources, and indicators used to monitor the performance of the pilot projects are laid out on the following two pages: Table 2a (Anticipated Impacts by Intervention) and Table 2b (Anticipated Overall Project Outcomes). A summary of the baseline information, as well as information collected during the pilot projects, is presented in this report. While the anticipated and desirable direction of change for each indicator was obvious from the beginning, specific targets were not established by the sponsoring partners.

The consumer education component of the pilot projects included education provided by local Food Mail Pilot Project Coordinators with the support of regional nutritionists and the dissemination of information from the baseline surveys about nutrition and food security. Baseline information was not collected on consumer awareness and skills. However, some indication of consumers' awareness of the pilot projects was obtained during focus groups conducted in March 2004. Perceptions of price changes, obtained through the household surveys and focus groups, to the extent that they are consistent or inconsistent with actual price changes, are an indicator of consumer awareness. Improvements in consumer awareness and skills, including awareness of price changes, are assumed to contribute to the anticipated outcomes.

**Table 2a. Food Mail Pilot Projects
Model and Performance Monitoring Framework
Anticipated Impacts by Intervention**

Intervention/Activity	Anticipated Impacts	Indicators	Information Sources
Rate reduction (\$0.50/kg) for shipping priority perishable foods	Reduced cost of priority perishable food	Cost of priority perishables in the Revised Northern Food Basket and of specific food items Perceptions of prices and price changes	Food price surveys Household surveys Focus groups
Food Mail Quality Assurance Initiative ¹	Improved quality of perishable food	Number and types of fresh fruits and vegetables of good or excellent quality available Perception of quality of healthy foods	Food quality surveys Household surveys Focus groups
Retail promotion of healthy foods	Improved variety and availability of healthy foods	Variety (type, purchase size) of frozen fruits and vegetables and frozen juice available	Household surveys Focus groups
		Variety (type, purchase size) of fresh dairy products of good or excellent quality available ¹ Availability of eggs ¹ Perception of variety and availability of healthy foods	Household surveys Focus groups Household surveys Focus groups
	Improved retail environment	Price labelling Identification of priority perishables Sanitation Display	Local inspections Information from retailers Information from retailers
Consumer education	Improved consumer knowledge and skills	Awareness of pilot project	Focus groups
Country food accepted as priority perishable food in Cambridge Bay	Reduced cost and improved variety of country food available in the Co-op store in Kugaaruk	Cost and variety of country foods available	Food price surveys
¹ Fresh dairy products and eggs are presumed to be of good or excellent quality unless past the “best before” date or moldy.			

**Table 2b. Food Mail Pilot Projects
Model and Performance Monitoring Framework
Anticipated Overall Project Outcomes**

Anticipated Outcomes¹	Indicators	Information Sources
Better purchasing decisions (e.g., increased purchase of priority perishable foods, reduced purchase of junk food and convenience foods)	Foods purchased in the past 4 weeks	Household surveys
	Perceptions of change in purchasing	Focus groups
	Retail sales	Retailers
	Volumes of Food Mail shipments	Canada Post
Increased consumption of priority perishable foods and country foods	Mean consumption of various foods	Nutrition surveys – 24-hour recalls
Reduced consumption of junk food and convenience foods	Frequency of consumption of various foods in previous month	Nutrition surveys – Food Frequency Questionnaire
Improved nutrient intake (more vitamin A, vitamin C, vitamin B6, folate, calcium, fibre; less fat, saturated fat, sugar)	Mean and median intakes	Nutrition surveys – 24-hour recalls
	Percent with inadequate intakes	
Improved food security	Percent food secure, food insecure without hunger, and food insecure with hunger	Household surveys (USDA Food Security Module)
Improve health (long term)	Self-rated health	Nutrition and health surveys
	Health conditions	
Better decisions by all levels of government on matters related to food security and nutrition	Improvements in Food Mail Program benefiting all isolated communities	
	Improvements in other programs and policies related to food security and nutrition	
¹ Anticipated outcomes in this table are the combined effect of all the interventions in the first column of Table 2a rather than the outcome of a specific intervention.		

Surveys of Nutrition and Food Security

Baseline surveys of nutrition and food security were conducted in the three pilot communities just before the projects began. These surveys included 24-hour diet recalls and food frequency questionnaires for women of childbearing age to assess nutrient intake and food consumption patterns during the preceding month and a survey of all households to measure food security, food purchasing, perceptions of food quality and price change, and barriers to purchasing certain foods. Detailed reports on these surveys have been published.^{6,7,8} Some key findings of these surveys, and of second, similar household surveys conducted in Kugaaruk (March 2004), Kangiqsujuaq (February 2005), and Fort Severn (December 2004) are presented in relevant sections of this overview.^{9,10,11}

Monitoring of Food Prices, Quality, Variety, Shipments and Sales

Since the interventions were intended to reduce the price and improve the quality, variety, and consumption of healthy foods, arrangements were put in place to monitor price, quality, variety, and shipments. While some price surveys were conducted before and during the pilot projects by INAC staff during site visits, the major responsibility for conducting price and quality surveys was assumed by the Hamlet, Northern Village, and First Nation under contracts with INAC. Local people in each pilot community were trained for this purpose.

Canada Post has provided INAC with quarterly information on the volume (weight) of priority perishable, other perishable, and non-perishable foods shipped to each community before and during the projects. However, most non-perishable food consumed in these communities arrives by other means. Although information is not currently available to INAC on the amount of food that is shipped but not sold in the community, there can be no doubt that a significant change in the volume of food shipped would indicate a similar change in the amounts consumed by the community overall.

Since details on the amounts of various kinds of food shipped are not available from Canada Post, INAC made arrangements with ACL to obtain detailed data on sales of various foods by the Co-op in Kugaaruk in 2001 to 2007. The North West Company and the FCNQ have also indicated their willingness to provide sales data to INAC. However, differences among, and changes in, the systems that retailers use to track sales, and the fact that some systems record the numbers of sales and the sales value but not the quantity (weight) of the products sold, makes it very difficult and time-consuming to create reliable and useful indicators of sales trends, particularly for fresh fruit and vegetables.

Focus Groups and Key Informant Interviews

Focus groups, involving a total of 59 community residents, were conducted in March 2004, and interviews with 34 key informants involved in these projects in different roles were conducted in March and April 2004 to obtain their perceptions of the implementation, impact, strengths, and weaknesses of each component of these projects, their overall satisfaction with the projects, and their suggestions for improvements. The participants also provided some basic demographic and food security information. The focus groups and interviews were conducted by an independent expert in program evaluation, under a contract with INAC, with assistance from a local interpreter. An indication of the focus group participants' awareness, involvement in, and understanding of the pilot project in their community was also obtained through this process.

The 17 focus group participants in Kangiqsujuaq and the 21 in Fort Severn were all Aboriginal. However, five of the 21 participants in Kugaaruk were non-Aboriginal. Almost all the participants were over 30 years of age. While those in Kugaaruk were

evenly split between men and women, most of those in the other two communities were women. Only about a quarter of the participants were from households receiving social assistance, but 60% of the participants said that they or other adults in the household had cut the size of their meals or skipped meals during the previous year because there was not enough money for food. This percentage ranged from 43% in Kugaaruk to about 70% in the other two communities.

The 34 key informants interviewed included representatives from all the project sponsors, Canada Post, the three airlines providing Food Mail service to the pilot communities, the local retailers and their headquarters or umbrella organizations, the local project co-ordinators, local health care professionals, and a contract dietitian who had been involved in the consumer education component in two communities.

While the consultant's report¹² has not been published, the key findings of the focus groups and key informant interviews have been included in the pertinent sections of this overview report.

Peer Review

Three nutrition experts were contracted in April 2005 to assess the effectiveness of the Food Mail Pilot Projects and to identify gaps in information and make recommendations based on a review of existing evaluation data. The peer reviewers – from Queen's University, Université de Montréal, and the University of Hawaii – were provided with a variety of program data related to the implementation and outcomes of the pilot projects. The peer reviewers' responses to a series of questions were summarized and discussed during a meeting with representatives of INAC, Health Canada, and the peer reviewers held in June 2005. The discussion focused on the effectiveness of the various components of the Food Mail Pilot Projects, the interpretation of shipping volumes as an indicator of the consumption of priority perishable foods, the need for data collection in control communities, and the significance of observed changes with respect to diet and health. The peer reviewers' responses to the recommendations put forward by INAC for the Food Mail Program were also discussed. Their feedback is incorporated into this report.

ACHIEVEMENTS TO DATE

Price of Priority Perishable Foods

Prior to the implementation of the pilot projects, food was approximately 27% more expensive in Kugaaruk than in Kangiqsujuaq (see Table 3). The cost in Fort Severn was midway between the other two communities. The difference in cost was especially great for priority perishable foods, which were almost 40% more expensive in Kugaaruk than in Kangiqsujuaq.

Table 3. Food Costs Before the Pilot Projects

Revised Northern Food Basket¹	Kugaaruk August 2001	Kangiqsujuaq May 2002	Fort Severn October 2002
Priority perishable foods	\$162	\$116	\$154
Other perishables	\$106	\$87	\$97
Non-perishables	\$122	\$104	\$104
Total	\$391	\$307	\$355

¹ Weekly food costs for a family of four (a man and a woman aged 31 to 50 and a girl and a boy aged 9 to 13), based on the average price in the community for each item in the basket, using specified purchase sizes and, for a few products, a specific national brand, if available. The price survey in Fort Severn was completed in October, prior to the baseline nutrition and food security survey conducted in December 2002. Only the Northern store was selling food at the time of the price survey. However, the convenience store was also selling food during the nutrition and food security survey. Components may not add to the total due to rounding of figures.

As presented in Table 4, the monthly cost of food was \$131 more in Kugaaruk, \$123 more in Kangiqsujuaq, and \$373 more in Fort Severn than the after-shelter social assistance income for a two-parent family of four.

Table 4. Affordability of Food Before the Pilot Projects

Monthly Income/Costs¹	Kugaaruk August 2001	Kangiqsujuaq May 2002	Fort Severn October 2002
After-shelter income	\$1,562	\$1,204	\$1,163
Food costs ²	\$1,693	\$1,327	\$1,536
Income remaining (shortfall)	(\$131)	(\$123)	(\$373)

¹ Income includes tax benefits and credits as well as social assistance.
² Costs are based on the Revised Northern Food Basket.

The prices of priority perishable foods were, for the most part, reduced by at least the amount of the rate reduction of \$0.50 per kilogram. The prices of these foods have remained lower in the three pilot communities than in stores belonging to the same retail organization in nearby communities using the same supply chain. The difference in prices between those in the pilot communities and those in the relevant southern food entry points was reduced. The following series of tables (Tables 5a – 5e) presents the price of selected priority perishable foods prior to the implementation of the pilot projects in 2001, at the time of first price survey after the rate reduction (2002 in Kugaaruk and 2003 in Kangiqsujuaq and Fort Severn), and again in 2005 and 2006 in each community.

Table 5a. Price of 2 L of Milk

Community	Price (\$)				Overall Change in Price (2001-2006)
	Before Rate Reduction (2001)	After Rate Reduction			
		First Survey After Rate Reduction	2005	2006	
Kugaaruk – Co-op store ¹	(August) 9.98	²⁰⁰² (February) 5.14	(January) 5.99	(March) 5.99	Decreased
Kangiqsujuaq – Co-op store ²	(December) 5.81	²⁰⁰³ (June) 4.78	(August) 5.25	(March) 5.79	Decreased
Kangiqsujuaq – Northern store	(December) 6.39	(April) 4.75	(January) 4.65	(March) 5.15	Decreased
Fort Severn – Northern store ³	(November) 7.19	²⁰⁰³ (March) 5.05	(February) 5.09	(April) 5.19	Decreased
Fort Severn – Convenience store ⁴	(November) 6.93	(March) 7.38	(February) 6.73	(April) 6.13	Decreased

¹ The only fluid milk sold in Kugaaruk before the pilot project was UHT milk, sold in 1 L boxes. Prices are for two 1 L boxes of UHT milk in 2001 and for one 2 L carton of 2% milk in 2002, 2005 and 2006.

² Prices are for one 2 L carton of homogenized milk.

³ Price in 2001, 2003, and 2005 is for one 2 L carton of homogenized milk and for one 2 L carton of skim milk in 2006.

⁴ Prices are for 2 L of 2% milk purchased in 4 L jugs or bags.

- ◆ While the price of 2 L of milk in Kugaaruk was less in February 2002 than in August 2001, it is important to keep in mind that the prices reported in Table 5a are for UHT milk in 2001 and 2% fresh milk in 2002. Until 2002, the only fluid milk available was UHT milk which is generally more expensive than fresh milk. While the price of 2 L of 2% milk increased between 2002 and the price survey in March 2006, it was still \$1.00 less expensive than at the Co-op store in Gjoa Haven.
- ◆ In Kangiqsujuaq, 2 L of 2% milk sold for less at both the Co-op store and the Northern store in 2006 than in December 2001.
- ◆ In April 2006, 2 L of 2% milk cost less at both the Northern store and the Convenience store in Fort Severn than in November 2001.

Table 5b. Price of 1 Dozen Eggs (Large)

Community	Price (\$)				Overall Change in Price (2001-2006)
	Before Rate Reduction (2001)	After Rate Reduction			
		First Survey After Rate Reduction	2005	2006	
Kugaaruk – Co-op store	(August) 3.97	²⁰⁰² (February) 3.97	(February) 3.99	(March) 4.49	Increased
Kangiqsujuaq – Co-op store	(December) 3.34	²⁰⁰³ (June) 3.11	(February) 3.20	(March) 3.29	Decreased
Kangiqsujuaq – Northern store	(December) 3.29	(April) 3.45	(February) 3.99	(March) 3.69	Increased
Fort Severn – Northern store	(November) 3.85	²⁰⁰³ (March) 3.85	(February) 3.35	(April) 3.25	Decreased
Fort Severn – Convenience store ¹	(November) 4.25	(March) 3.95	(February) 4.05	(April) 3.75	Decreased

¹ Price is for 1 dozen of extra large eggs in 2006.

- ◆ The price of 1 dozen large eggs in Kugaaruk in March 2006 was higher than before the rate reduction in 2001 and higher than the price at the Co-op store in Gjoa Haven where 1 dozen large eggs cost \$3.69.

- ◆ The price of 1 dozen large eggs in Kangiqsujuaq was slightly less at the Co-op store in March 2006 than in December 2001 while at the Northern store 1 dozen eggs cost more in 2006 than before the rate reduction.
- ◆ In Fort Severn, the price of 1 dozen eggs was less at both the Northern store and the Convenience store in March 2006 than in November 2001.

Table 5c. Price of 355 ml of Frozen Orange Juice

Community	Price (\$)				Overall Change in Price (2001-2006)
	Before Rate Reduction (2001)	After Rate Reduction			
		First Survey After Rate Reduction	2005	2006	
Kugaaruk – Co-op store	(August) 2.99	²⁰⁰² (February) 2.99	(February) 2.99	(March) 2.99	No change
Kangiqsujuaq – Co-op store	(December) 2.43	²⁰⁰³ (April) 2.24	(January) 2.31	(March) NA	Decreased
Kangiqsujuaq – Northern store	(December) 2.99	(April) 2.99	(January) 2.85	(March) 2.85	Decreased
Fort Severn – Northern store	(November) 3.39	²⁰⁰³ (March) NA	(February) 2.85	(April) 3.25	Decreased
Fort Severn – Convenience store ¹	(November) NA	(March) NA	(February) NA	(April) NA	Not known

¹ Frozen orange juice was not available at the convenience store in Fort Severn on these dates.

- ◆ In Kugaaruk, the price of 355 ml of frozen orange juice has not changed since August 2001.
- ◆ In Kangiqsujuaq, the price of 355 ml of frozen orange juice at the Co-op store was less in January 2005 than in December 2001. Similarly, the price of frozen orange juice at the Northern store was less in March 2006 than prior to the rate reduction.
- ◆ The price of 355 ml of frozen orange juice at the Northern store in Fort Severn was slightly less in April 2006 than in November 2001.

Table 5d. Price of 1 Kg of Bananas

Community	Price (\$)				Overall Change in Price (2001-2006)
	Before Rate Reduction (2001)	After Rate Reduction			
		First Survey After Rate Reduction	2005	2006	
Kugaaruk – Co-op store	(August) 3.59	²⁰⁰² (February) 2.49	(February) 2.99	(March) 3.99	Increased
Kangiqsujuaq – Co-op store	(December) 2.88	²⁰⁰³ (April) 1.90	(February) 2.71	(March) 2.89	No change
Kangiqsujuaq – Northern store	(December) 2.73	(April) 3.02	(February) 2.59	(March) 2.39	Decreased
Fort Severn – Northern store	(November) 5.29	²⁰⁰³ (March) 3.38	(February) 3.35	(April) 3.75	Decreased
Fort Severn – Convenience store	(November) 4.89	(March) 4.95	(February) 4.45	(April) 4.45	Decreased

- ◆ In March 2006, the price of 1 kg of bananas in Kugaaruk cost more than before the rate reduction.
- ◆ The price of 1 kg of bananas at the Co-op store in Kangiqsujuaq did not change between December 2001 and March 2006. At the Northern store, shoppers paid less for 1 kg of bananas in 2006 than in 2001.

- ◆ At both the Northern store and the Convenience store in Fort Severn, the price of 1 kg of bananas was less in April 2006 than in November 2001.

Table 5e. Price of a 2 lb Bag of Carrots (Unpeeled)

Community	Price (\$)				Overall Change in Price (2001-2006)
	Before Rate Reduction (2001)	After Rate Reduction			
		First Survey After Rate Reduction	2005	2006	
Kugaaruk – Co-op store	(August) 4.49	²⁰⁰² (February) 3.29	(February) 2.99	(March) 3.29	Decreased
Kangijsujuaq – Co-op store	(December) 1.71	²⁰⁰³ (June) 2.60	(February) 2.32	(March) 2.49	Increased
Kangijsujuaq – Northern store	(December) 1.89	(April) 1.63	(February) 1.75	(March) 1.79	Decreased
Fort Severn – Northern store	(November) 5.15	²⁰⁰³ (March) 3.46	(June) 3.69	(April) 3.49	Decreased
Fort Severn – Convenience store ¹	(November) 2.85	(March) 3.45	(June) NA	(April) NA	Not known

¹ Two pound bags of unpeeled carrots were not sold at the convenience store in Fort Severn in 2005 or 2006.

- ◆ In Kugaaruk, the price of a 2 lb bag of unpeeled carrots was less in March 2006 than in August 2001.
- ◆ In Kangijsujuaq, the price of a 2 lb bag of carrots at the Co-op store was more in March 2006 than in December 2001. However, it should be noted that this increase in price is due to a change in policy at the Federation, which reduced the amount of subsidy it had been providing for shipping heavy perishable foods such as carrots. On the other hand, a 2 lb bag of carrots cost less at the Northern store in 2006 than before the rate reduction.
- ◆ The price of a 2 lb bag of carrots at the Northern store in Fort Severn was less in April 2006 than in November 2001. Community members paid more for a bag of carrots at the Convenience store in March 2003 than they did before the rate reduction in 2001.

In summary, the reduction in the price of milk was satisfactory in all stores in all three communities. The reduction in the price of eggs was, in general, less satisfactory than that of milk. While somewhat satisfactory at the Co-op store in Kangijsujuaq and the Northern and convenience stores in Fort Severn, the price reduction for eggs was not satisfactory at the Co-op store in Kugaaruk and the Northern store in Kangijsujuaq. The reduction in the price of frozen orange juice was generally satisfactory in all stores in Kangijsujuaq and Fort Severn. There was no change in price in Kugaaruk. With the exception of Kugaaruk in 2006, the reduction in the price of bananas was satisfactory. Lastly, the reduction in the price of carrots was satisfactory at the Co-op store in Kugaaruk and the Northern store in Fort Severn. The reduction was not satisfactory at the convenience store in Fort Severn. Although prices did not decrease at the Co-op store in Kangijsujuaq, the prices of carrots at both stores in 2006 were reasonable and were much lower than in Kugaaruk or Fort Severn.

The effect of the rate reduction was also measured using the total cost of the priority perishable items in the Revised Northern Food Basket that INAC launched in 2008 to monitor the weekly cost of a healthy food basket for a family of four. The priority perishables in this basket include milk, yogurt, cheese, eggs, frozen orange juice, frozen apple juice, oranges, apples, bananas, grapes, potatoes, carrots, onions, cabbage, turnips, and a variety of frozen vegetables. Since the priority perishable foods in the Revised Northern Food Basket weigh approximately 28 kilograms, the rate reduction of \$0.50 per kilogram should have reduced their cost by about \$16 per week, taking into account the weight of the packaging and spoilage.

Table 6 presents the total cost of the Revised Northern Food Basket in the pilot communities, nearby communities, food entry points, and southern supply centres before the rate reduction, after the rate reduction (2002 in Kugaaruk and 2003 in Kangiqsujuaq and Fort Severn), and again in 2005 and 2006 in each community. According to these data, the cost of priority perishable foods in the Revised Northern Food Basket was \$30 less in Kugaaruk than in Gjoa Haven and \$26 less in Kangiqsujuaq than in Kangirsuk in 2006. It was also \$16 less in Fort Severn in 2005 than in Attawapiskat. Although the Northern store in Attawapiskat does not use food mail, it provides a reasonable basis for comparison since the distance from the food entry point in Timmins to Attawapiskat is similar to the distance from Pickle Lake to Fort Severn. Despite the Federation's change in policy previously referred to, prices in Kangiqsujuaq were still lower in 2006 than in 2001.

As of March 2003, the total cost of priority perishable foods in the Revised Northern Food Basket at the Northern store in Fort Severn was \$30 less than in November 2001. However, almost half of that reduction had occurred by October 2002, i.e., before the pilot project began. The reasons for that reduction are unknown. Between October 2002 and March 2003, the cost of priority perishables in the basket decreased by an additional \$16, from \$154 to \$138. A further reduction of \$4 occurred over the next three years.

Table 6. Weekly Cost of Priority Perishables in the Revised Northern Food Basket

Community	Weekly Cost (\$)¹			
	Before Rate Reduction	After Rate Reduction		
		Shortly After Rate Reduction	Mid-Implementation	2006 Price Survey
Kugaaruk	<u>2001</u> (August) \$162	<u>2002</u> (November) \$127	<u>2005</u> (January) \$121	<u>2006</u> (March) \$137
Gjoa Haven		(November) \$145	(January) \$160	(March) \$167
Taloyoak	(August) \$156			(August) \$165
Yellowknife	(October) \$72	(October) \$79	(January) \$81	(March) \$83
Edmonton	(October) \$73	(October) \$78	(January) \$69	(March) \$73
Kangiqsujuaq	<u>2001</u> (December) \$119	<u>2003</u> (April) \$101	<u>2005</u> (August) \$114	<u>2006</u> (March) \$107
Kangirsuk	(December) \$115	(April) \$111	(August) \$124	(March) \$133
Val-d'Or	(October) \$70		(November) \$74	
Montreal	(December) \$70		(November) \$69	
Fort Severn	<u>2001</u> (November) \$168	<u>2003</u> (March) \$138	<u>2005</u> (November) \$137	<u>2006</u> (April) \$134
Pickle Lake	(December) \$100		(November) \$101	
Winnipeg	(May) \$70	(March) \$71	(November) \$71	
Attawapiskat	(January) \$70		(February) \$153	
Moosonee			(February) \$93	
Timmins	(May) \$63		(January) \$67	

¹ The cost in Kugaaruk is based on prices at the Co-op, the only store in this community. In Gjoa Haven and Taloyoak, the cost is based on prices at the Co-op store. In Kangiqsujuaq and Kangirsuk, the cost is based on the average price at the two stores in the community for each item in the basket. In Fort Severn, Pickle Lake, Attawapiskat and Moosonee, the cost is based on prices at the Northern store. The cost in southern cities and Yellowknife is based on prices at one supermarket.

The community members who participated in the focus groups in March 2004 were asked whether the price of a number of types of foods had decreased, increased, or stayed the same in the last two years. In Kugaaruk and Fort Severn, most of the participants said they had not noticed a price change in these foods except for a decrease in the price of eggs and an increase in the price of fresh fruits and vegetables. In Kangiqsujuaq, the majority said that the price of fresh and frozen fruits and vegetables and milk had decreased and the price of frozen juice concentrate, cheese, yogurt, and eggs had increased.

Table 7 compares the actual change in prices of priority perishable foods with the focus groups' perceptions as well as the perceptions of the participants in the second household surveys conducted in Kugaaruk (March 2004), Kangiqsujuaq (February 2005), and Fort Severn (December 2004).

Table 7. Actual and Perceived Changes in the Price of Priority Perishable Foods

Priority Perishable Foods	Kugaaruk			Kangiqsujuaq			Fort Severn		
	Actual ¹	Focus Groups ²	Household Survey ³	Actual ¹	Focus Groups ²	Household Survey ³	Actual ¹	Focus Groups ²	Household Survey ³
Fresh fruits and vegetables		No change			Decreased			Increased	
Fresh fruit	Decreased		No change	Variable		Decreased	Decreased		Increased
Fresh vegetables	Decreased		No change	Variable		Decreased	Decreased		Increased
Frozen fruits and vegetables		No change			Decreased			No change	
Frozen fruits	Unknown		Not asked	Unknown		Not asked	Unknown		Not asked
Frozen vegetables	Variable		No change	Variable		Increased	Decreased		No change
Frozen juice concentrate	Decreased	No change	No change	Variable	Increased	Increased	Decreased	No change	No change
Eggs	No change	No change	No change	Decreased	Increased	No change	Decreased	Decreased	No change
Fresh milk	Decreased	No change	Increased	Decreased	Decreased	Increased	Decreased	No change	No change ⁴
Cheese	Decreased	No change	Increased	Increased	Increased	Increased	Decreased	No change	Increased
Yogurt	Decreased	No change	No change	No change	Increased	Increased	Decreased	No change	No change
Powdered milk	Increased	Not asked	Not asked	Decreased	Not asked	Not asked	Increased	Not asked	Not asked
Whole wheat bread	Not a priority perishable food in these communities.						Increased	No change	Increased
Cook-type cereals/oats	Not a priority perishable food in these communities.						Increased	No change	No change

¹ Actual changes are based on the number of matched products in each category where the price has increased, decreased, or stayed the same between August 2001 and October 2003 in Kugaaruk, between May 2002 and June 2004 in Kangiqsujuaq, and between October 2002 and February 2004 in Fort Severn. Since only one store in Fort Severn was selling food in October 2002, actual price changes are based only on prices in that store.

² Perceptions of the focus groups are based on the perception of the majority of the participants.

³ For the household surveys, perception is based on the largest response category (increase, decrease, no change).

⁴ 33% of respondents felt that the price of fresh milk had increased while 33% felt that the price had decreased.

The key informants who were interviewed in March 2004 were asked how successful they felt the reduction of food prices had been in the pilot communities. Overall, they felt that the price reduction component had been fairly successful but that it had been most successfully implemented in Kangiqsujuaq.

Food Quality, Availability and Variety

Quality of Perishable Foods

In all three pilot communities, a significantly higher percentage of respondents rated the quality of fresh fruits and vegetables as good or excellent at the time of the second household survey than in the baseline survey. As well, a higher percentage of respondents in Kugaaruk and Fort Severn felt that the quality of bread and eggs was good or excellent while more households in Kangiqsujuaq and Fort Severn rated fresh milk as good or excellent.

The focus group participants were also asked whether they felt the quality of priority perishable foods had improved, gotten worse, or stayed the same. In Kugaaruk and Fort Severn they reported that they had not noticed an improvement in the quality of any of the priority perishable foods with the exception of fresh fruits and vegetables in Kugaaruk and cheese in Fort Severn. On the other hand, the participants in Kangiqsujuaq felt that the quality of eggs, fresh milk, cheese, and yogurt had improved over the last two years.

Table 8 compares the focus groups participants' perceptions of the change in the quality of priority perishable foods since the pilot projects began with the perceptions of the respondents who took part in the second household surveys.

Table 8. Perceived Changes in the Quality of Priority Perishable Foods

Food Item	Kugaaruk		Kangiqsujuaq		Fort Severn	
	Focus Groups ¹	Household Surveys ²	Focus Groups ¹	Household Surveys ²	Focus Groups ¹	Household Surveys ²
Fresh fruits and vegetables	Improved		No change		No change	
Fresh fruit		Improved		Improved		Improved
Fresh vegetables		Improved		Improved		Improved
Frozen fruits and vegetables	No change		No change		No change	
Frozen fruit		Not asked		Not asked		Not asked
Frozen vegetables		Worse		Improved		Improved
Frozen juice concentrate	No change	Not asked	No change	Not asked	No change	Not asked
Eggs	No change	Improved	Improved	Improved	No change	Improved
Fresh milk	No change	Improved	Improved	Improved	No change	Improved
Cheese	No change	Not asked	Improved	Not asked	Improved	Not asked
Yogurt	No change	Not asked	Improved	Not asked	No change	Not asked
Powdered milk	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked
Whole wheat bread	Not a priority perishable food in these communities.				No change	Improved
Cook-type cereals	Not a priority perishable food in these communities.				No change	Not asked

¹ Perceptions of the focus groups are based on the perception of the majority of the participants.

² For the household surveys, perception is based on the difference in the percentage of responses at baseline and follow-up (second) surveys.

When asked to comment on the success of the food quality assurance component of the pilot projects, the key informants felt that the implementation of this particular component had been fairly successful in Kangiqsujuaq but not successful in Kugaaruk and Fort Severn. They felt that there had been very little change in Kugaaruk and Fort Severn and that the overall quality of the priority perishable foods was poor.

Lastly, a local price and quality surveyor was hired and trained in each of the pilot communities. The surveyor was to conduct a price survey once a month in each grocery store. A quality survey was also to be conducted once a month in each store on a day when the shelves were stocked. In addition, quality surveys were to be completed on six consecutive days (Monday through Saturday) once every two months. According to the food quality survey data collected in Kugaaruk (August – October 2003), Kangiqsujuaq (January – March 2004), and Fort Severn (October 2003 – June 2004), an average of nine fresh fruits and vegetables of good or excellent quality were available in Kugaaruk compared to 25 in Kangiqsujuaq and 14 in Fort Severn. Table 9 compares the average with the minimum and maximum numbers of good or excellent quality fresh fruits and vegetables available in each of the pilot communities during the above time periods.

Table 9. Availability of Fresh Fruits and Vegetables of Good or Excellent Quality

Food Item	Kugaaruk		Kangiqsujuaq		Fort Severn	
	Fresh Fruits	Fresh Vegetables	Fresh Fruits	Fresh Vegetables	Fresh Fruits	Fresh Vegetables
Average Number	4	5	10	15	5	9
Minimum Number	0	2	7	14	0	2
Maximum Number	10	9	14	20	16	20

Availability of Priority Perishable Foods

In Kugaaruk, 44% of second household survey respondents indicated that fresh fruits and vegetables were more available than two years ago while 41% felt that there was no change in availability. Similarly, the majority (59%) of respondents in Kangiqsujuaq felt that fresh fruits and vegetables were more available in 2005 than in 2002. Lastly, the majority (48%) of respondents who took part in the second household survey felt that the availability of fresh fruits and vegetables in Fort Severn had not changed since the time of the baseline survey. However, 30% of households felt that they were currently more available.

Overall, the focus group participants in Kugaaruk and Fort Severn in March 2004 felt that the availability of priority perishable foods had not improved since the pilot projects began with the exception of fresh fruits and vegetables and yogurt in Kugaaruk and fresh fruits and vegetables in Fort Severn. They also reported that yogurt and whole wheat bread were less available in Fort Severn. In contrast, the Kangiqsujuaq focus group participants felt that the availability of all of the priority perishable foods had improved since the start of the pilot project. The community

members in Kugaaruk reported that country foods were occasionally available in the Koomiut Co-op but were very expensive.

Table 10 presents the focus groups participants’ perceptions of the change in the availability of priority perishable foods since the pilot projects began as well as those of the participants who took part in the second household surveys.

Table 10. Perceived Changes in the Availability of Priority Perishable Foods

Food Item	Kugaaruk		Kangiqsujuaq		Fort Severn	
	Focus Groups ¹	Household Surveys ²	Focus Groups ¹	Household Surveys ²	Focus Groups ¹	Household Surveys ²
Fresh Fruit and Vegetables	Increased	Increased	Increased	Increased	Increased	Increased
Frozen Fruit and Vegetables	No change	Not asked	Increased	Not asked	No change	Not asked
Frozen juice concentrate	No change	Not asked	Increased	Not asked	No change	Not asked
Eggs	No change	Not asked	Increased	Not asked	No change	Not asked
Fresh Milk	No change	Not asked	Increased	Not asked	No change	Not asked
Cheese	No change	Not asked	Increased	Not asked	No change	Not asked
Yogurt	Increased	Not asked	Increased	Not asked	Decreased	Not asked
Powdered milk	Not asked	Not asked	Not asked	Not asked	Not asked	Not asked
Whole wheat bread	Not a priority perishable food in these communities.				Decreased	Not asked
Cook-type cereals	Not a priority perishable food in these communities.				No change	Not asked

¹ Perceptions of the focus groups are based on the perception of the majority of the participants.
² Difference between the percentage of households that said that fresh fruits and vegetables were more or less available from the time of the baseline to that of the second household survey.

Variety of Fresh Fruits and Vegetables

In the second household survey, there was a significant increase in the percentage of respondents in Kugaaruk and Kangiqsujuaq who reported that there was enough variety of fresh fruit and vegetables always or most of the time. However, the majority of households in both communities still felt that there was only sometimes or never enough variety of fresh fruit and vegetables. Although the majority (58%) of households in Fort Severn felt that the variety of fresh fruits and vegetables was only sometimes or never adequate, this was a significant improvement since the baseline survey was conducted in 2002.

Food Purchasing

In all three pilot communities, higher purchases of specific fresh fruits and vegetables were reported for the four weeks prior to the second household surveys than the four weeks before the pilot projects began (at baseline). Furthermore, higher purchases of fresh milk, cheese, and frozen fruit juice were reported by the respondents in Fort Severn.

The community members who took part in the second household surveys were asked about changes in their food purchasing patterns over the past two to three years. Based on the difference between those who said they were buying more or less

priority perishable foods, there was an increase in all three communities in the percentage buying specific fresh/frozen fruits and vegetables, milk, and eggs while the respondents in Kugaaruk and Kangiqsujuaq reported purchasing more yogurt. In addition, households in Kugaaruk purchased more cheese, those in Kangiqsujuaq purchased more frozen fruit juice, and the respondents in Fort Severn purchased more whole wheat bread.

Change in food purchases during the four weeks prior to the surveys as well as the respondents' perceived change in food purchasing over a two to three year period are presented in Table 11.

Table 11. Perceived Changes in Purchases of Priority Perishable Foods

Food Item	Kugaaruk		Kangiqsujuaq		Fort Severn	
	Reported Purchases ¹	Perceived Change ²	Reported Purchases ¹	Perceived Change ²	Reported Purchases ¹	Perceived Change ²
Fresh fruit and vegetables						
Fresh fruit	Increased	No change	Increased	Increased	Increased	Increased
Fresh vegetables	Increased	No change	Increased	Increased	Increased	Increased
Frozen vegetables	Increased	No change	Decreased	Increased	Increased	Increased
Frozen pure fruit juice	Increased	No change	No change	Increased	Increased	Increased
Fresh milk	Increased	No change	Decreased	Not asked	Increased	Not asked
Powdered milk	Increased	No change	Decreased	Not asked	Increased	Not asked
Boxed milk	Decreased	No change	Increased	Not asked	Decreased	Not asked
Milk (fresh/boxed)	Not asked	No change	Increased	Increased	Not asked	Increased
Eggs	Not asked	No change	Not asked	Increased	Not asked	Increased
Cheese	Decreased	Increased	Increased	Increased	Increased	Increased
Yogurt	Increased	No change	Increased	Increased	Increased	Increased
Country food	Increased	No change	Not a priority perishable food in these communities.			
Whole wheat bread	Not a priority perishable food in these communities.				Not asked	Increased
Cook-type cereals (oats)	Not a priority perishable food in these communities.				Not asked	Increased

¹ Reported food purchasing patterns four weeks prior to the second household survey in Kugaaruk (2004), Kangiqsujuaq (2005), and Fort Severn (2004).
² Difference between the percentage of households in the second survey that said they were buying more or less priority perishable foods than two years ago in Kugaaruk and Fort Severn and three years ago in Kangiqsujuaq.

Shipments of Priority Perishable Foods

Quarterly data on the volumes of priority perishable foods shipped to the pilot communities were provided to INAC by Canada Post (Kugaaruk 2002-2008, Kangiqsujuaq 2002-2008, and Fort Severn 2003-2008).

The quarterly volumes of priority perishable foods shipped to each of the pilot communities are presented in the following figures (Figure 1 – Figure 3).

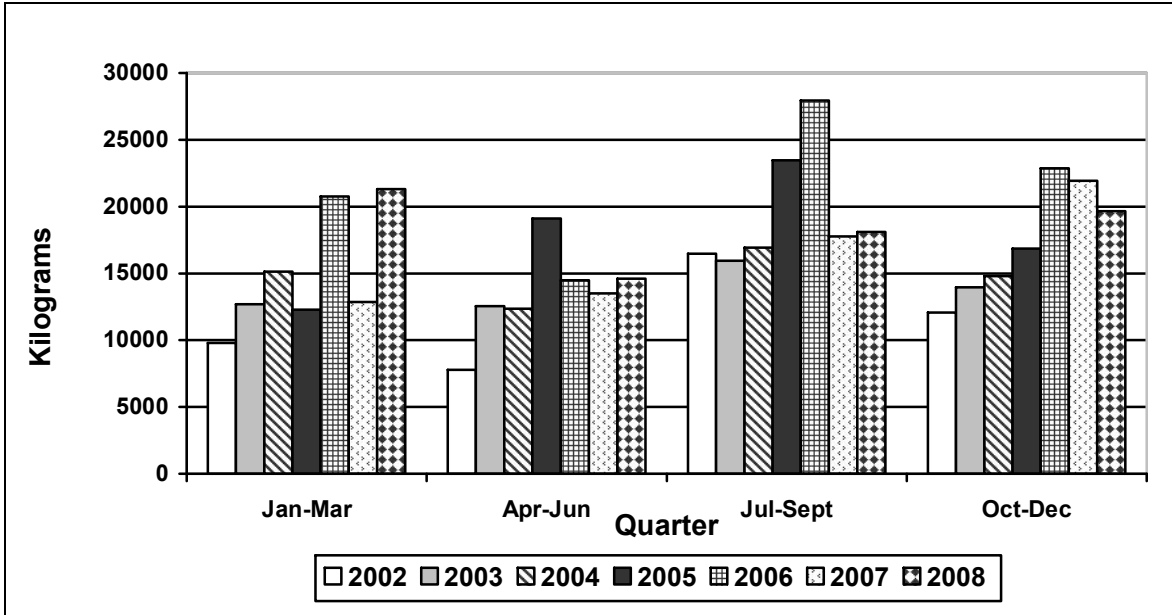


Figure 1: Quarterly volumes of shipments of priority perishables to Kugaaruk.

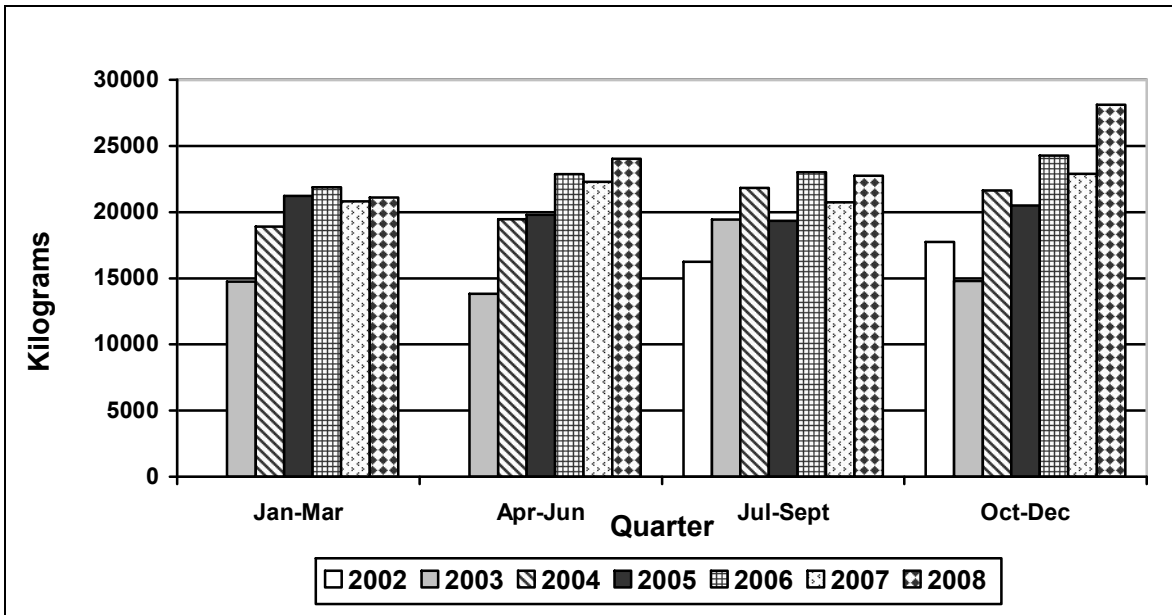


Figure 2: Quarterly volumes of shipments of priority perishables to Kangiqsujuaq.

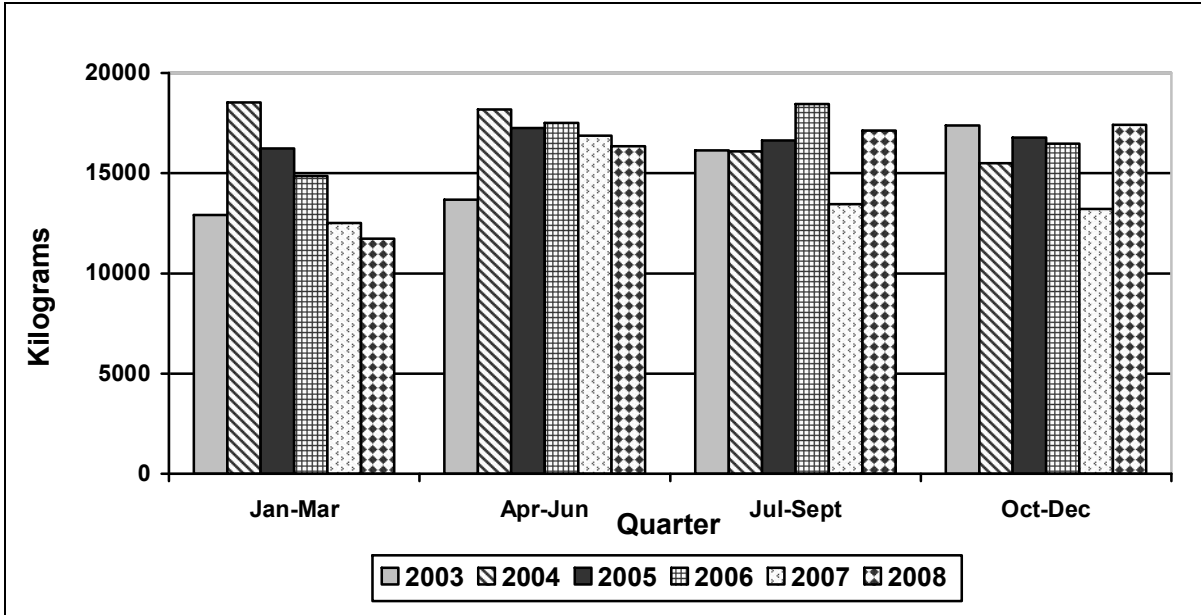


Figure 3: Quarterly volumes of shipments of priority perishables to Fort Severn.

The shipments of priority perishables to Kugaaruk during April to June 2005 were almost two and a half times more than during the same quarter in 2002 (which was four to six months after the pilot project began). The opening of the new grocery store in April 2005, which has more capacity to store and display perishables, could help to explain this increase in shipments. Between the first and third full years of the pilot project in Kugaaruk (2002-2004 inclusive), shipments of priority perishable foods had increased by 28%. However, full year volumes are affected by the presence of a large construction crew in Kugaaruk during the summer in 2002, 2003, and 2004.

It should also be noted that a number of families left Fort Severn during the summer in 2004 due to mold in the school.

Figure 4 presents the yearly volumes of priority perishables by community.

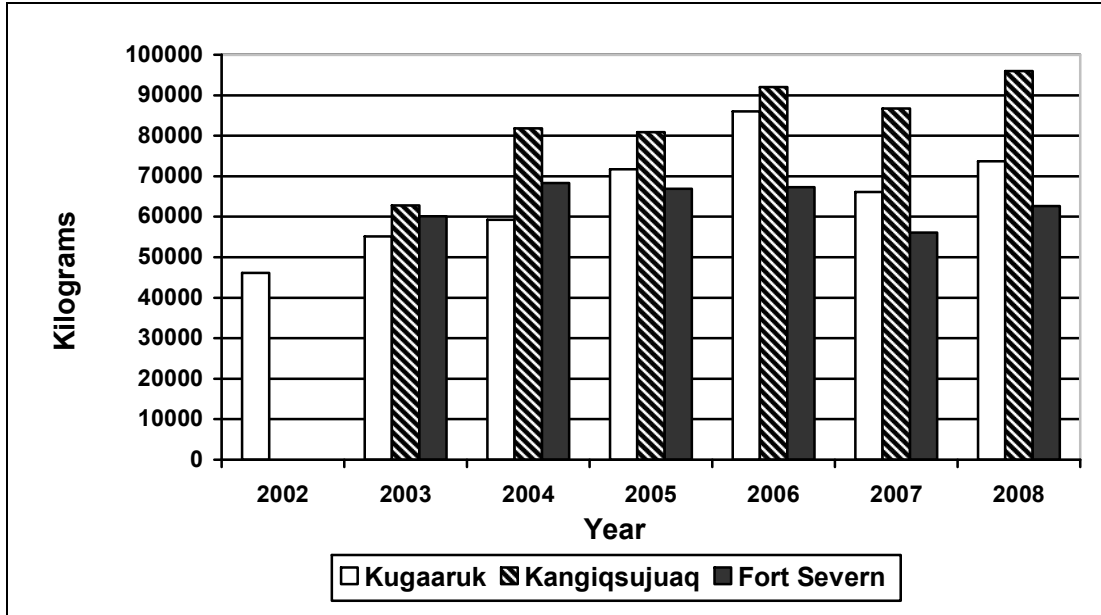


Figure 4: Yearly volumes of shipments of priority perishables by pilot community.

The clearest positive evidence of the pilot projects’ effectiveness is the reported increase in the volume of priority perishable foods shipped to the participating communities. While it is not possible to say for certain that the observed increase in shipping volumes was due to the Food Mail Pilot Projects, it appears that the pilot communities were, as a whole, consuming more priority perishable foods since the percentage change in the amount of food shipped can be used as a proxy for the percentage change in the amount of food consumed.

Data on shipments of priority perishable foods prior to the implementation of the pilot projects are not available. A “priority perishable” category did not exist in the Food Mail Program. However, if we assume that all of the *increase* in perishable food shipments during the first year of each pilot project consisted of priority perishables, this would represent increases of approximately 40 grams per person per day in Kugaaruk (excluding the summer quarter when the construction crew was in the community), 80 grams per person per day in Kangiqsujuaq, and 75 grams per person per day in Fort Severn.

The yearly volumes of priority perishable foods shipped to each of the pilot communities per person per day, with adjustments for population increases, are presented in Figure 5.¹ By 2006, shipments per person had increased by an additional 140 grams per day in Kugaaruk and 110 grams per day in Kangiqsujuaq before falling back in Kugaaruk and stabilizing in Kangiqsujuaq. When added together, the increases in these communities are sufficient to make a significant difference in nutrient intake and health if sustained over the long term. The true significance of

¹ The adjustment is based on 2001 and 2006 census data in Kugaaruk and Kangiqsujuaq and the Indian Register Population in Fort Severn.

these increases can only be assessed by conducting follow-up nutrition surveys and by analyzing data on retail sales of specific foods. The larger shortfall in income for residents of Fort Severn to be able to afford a healthy diet may explain why the pilot project has not resulted in a sustained increase in shipment of priority perishables to this community since 2003.

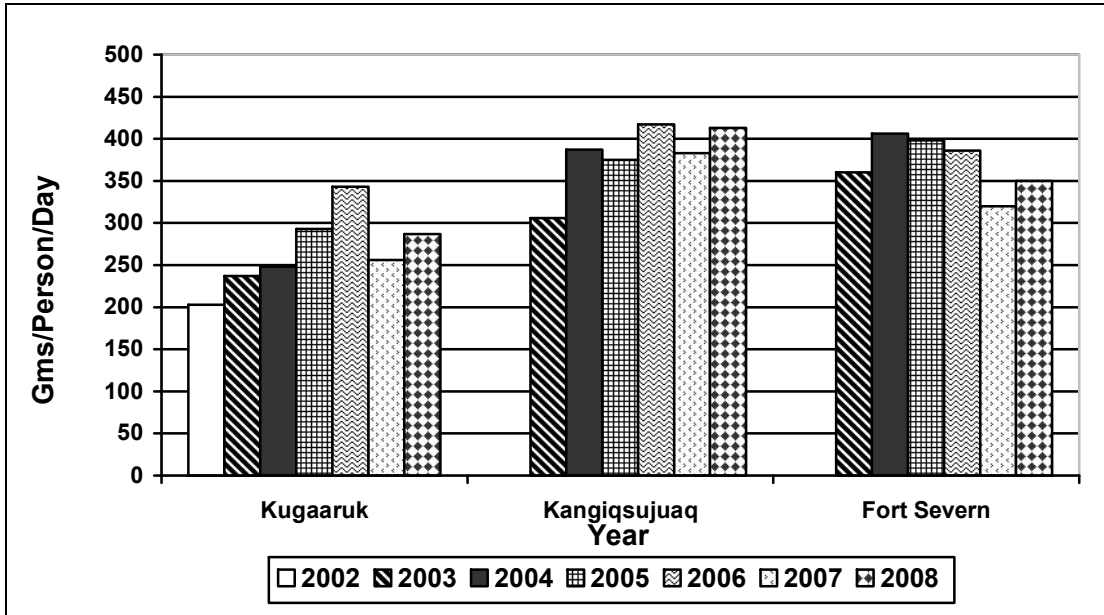


Figure 5: Volumes of shipments of priority perishables per person per day by pilot community.

Consumption of Priority Perishable Foods

When extrapolating changes in sales or shipping volumes to the amount of food consumed, waste at the retail or household levels and the amount of food consumed by community members versus short-term southern visitors need to be taken into consideration. The positive change in the consumption of priority perishable foods within the pilot communities, as approximated by the increase in shipping volumes, and the interest of community members in additional nutrition education activities indirectly support the assertion of improved dietary intake. Increases in the consumption of healthy foods by as little as one serving per day have been shown to have significant health benefits including a decreased risk of ischemic stroke and heart disease, cardiovascular and non-cardiovascular diseases related to deaths, and all-cause deaths.^{13,14,15} As well, high intakes of vegetables and fruits are protective against many chronic diseases such as diabetes, cardiovascular disease and many cancers.^{16,17,18,19} The World Health Organization (WHO) recommends each person eat at least 400 grams of vegetables and fruits per day.

Pre- and post-intervention dietary intake data would provide information about who within the community was consuming the promoted foods and would highlight which

groups (e.g., middle-aged, elderly, or younger people) may need more focused nutrition education. Also, a long term dietary assessment could provide information on whether the most food insecure people were actually consuming the most priority perishable foods. Because of budgetary considerations, baseline survey data only covered women of childbearing age.

Community and Key Informant Satisfaction

The community members who took part in the focus groups in March 2004 were asked how satisfied they were with the pilot projects in their respective communities. The participants in Kugaaruk were somewhat satisfied while those in Kangiqsujuaq and Fort Severn were very satisfied with the Food Mail Pilot Project.

Similarly, the key informants who were interviewed were, overall, fairly satisfied with the implementation of the Food Mail Pilot Projects. They felt that there had been some progress made in all of the participating communities. In Kugaaruk, some of the key components (e.g., food price reduction) had been implemented more successfully than others (e.g., consumer education) while in Kangiqsujuaq the food price reduction, food quality assurance, and consumer education had all been implemented fairly successfully. At the time that the interviews were conducted (March 2004), several of the key informants felt that it was too soon to comment on the pilot project in Fort Severn given the short time it had been in place but did feel that it had the potential to make a positive difference in people's lives.

CHALLENGES

Food Security

The food security of adults and children in the pilot communities during the 12 months preceding the rate reduction was measured using an 18-item scale used in Canada and the United States to classify households as food secure, food insecure without hunger, and food insecure with hunger. These surveys were repeated two to three years later, but the follow-up survey in Kugaaruk only asked about adult food security using a reduced 6-item scale.

The level of food insecurity varied among the three pilot communities. In Kugaaruk, there was a significant improvement in food security, with fewer adults classed as food insecure with hunger and a corresponding increase in those classified as food insecure without hunger in 2004. The working poor showed the greatest improvement in food security. The food security of children was not measured in Kugaaruk in 2004.

As in 2002, all the non-Inuit households in Kangiqsujuaq were food secure in 2005. However, there was a significant decline in the food security of Inuit adults in 2005.

Based on the 12 months prior to the follow-up survey in February 2005, approximately 25% of Inuit adults were classified as food insecure with hunger compared to 7% in 2002. There was no change in the percentage of children who were food insecure without hunger. However, more children were food insecure with hunger in 2005 than in 2002. Between 2002 and 2005, food insecurity with hunger increased among the working poor in particular.

Lastly, a higher percentage of adults in Fort Severn were food secure in 2004 than in 2002. At the same time, the percentage of adults who were food insecure with hunger was also higher than in 2002. There was a more positive change in the food security status of children. Compared to 2002 a higher percentage of children were classified as food secure while fewer children were classified as food insecure with or without hunger.

Table 12 presents the food security status of the pilot communities before and after the rate reduction.

Table 12. Food Security Status – Percentage of Responses

Food Security Status	Kugaaruk		Kangiqsujuaq		Fort Severn	
	Before Rate Reduction 2001	After Rate Reduction 2004 ¹	Before Rate Reduction 2002	After Rate Reduction 2005	Before Rate Reduction 2002	After Rate Reduction 2004
Adult Food Security						
Food secure	17%	21%	60%	51%	32%	39%
Food insecure without hunger	24%	51%	33%	27%	41%	29%
Food insecure with hunger	59%	28%	7%	22%	26%	32%
Child Food Security						
Food secure	17%	Question not asked	60%	53%	31%	44%
Food insecure without hunger	30%		34%	34%	45%	37%
Food insecure with hunger	52%		6%	14%	24%	19%

¹ Results for Kugaaruk in 2004 were based on a 6-item food security scale. All other results were based on the 18-item scale.

While the level of food insecurity in all three communities was extremely high, food security improved in two of the pilot communities. Specifically, food security improved among adults in Kugaaruk and among households with children in Fort Severn. The significant increase in food insecurity observed in Kangiqsujuaq appears to be related to environmental changes outside the scope of the pilot projects. While a significant improvement in food security will only be likely with improvements in poverty and unemployment and/or improved access to country foods, it is not unreasonable to expect the reduction in food costs achieved through the pilot projects to contribute to small improvements in food security. Levels of food insecurity will have to be reduced in order to observe significant improvements in the nutritional status of the population.

Community Awareness

Overall, the participating communities' awareness about the Food Mail Pilot Projects was limited. In Kugaaruk, the focus group participants felt that most people in their community did not know about the Food Mail Pilot Project and, if they did, they did not understand what the project's purpose was or how it "worked." In Kangiqsujaq the participants felt that, while most people in the community knew about the Food Mail Program, they were not aware of the difference between it and the pilot project. And, in Fort Severn the participants agreed that most people in the community, especially the Elders, did not know about the Food Mail Pilot Project. However, based on a comparison of baseline and second household survey data, there was an increase in the number of Inuit households that reported using the Food Mail Program for personal orders in both Kugaaruk and Kangiqsujaq. In Kugaaruk, the survey respondents mainly used the program to order meat, fresh fruits and vegetables, milk, and frozen food while households in Kangiqsujaq ordered meat, frozen food, and other food products.

As part of the retail promotion component of the pilot project, a number of promotional items were created to raise awareness of the Food Mail Pilot Project and the importance of healthy nutrition. The focus group participants were shown the retail promotion items developed for the Food Mail Pilot Projects and asked which items they had seen in their community as well as where they had seen them. Posters, shelftalkers, and danglers were produced in English and Inuktitut for use in Kugaaruk, posters, shelftalkers, danglers, and brochures were produced in English/Inuktitut and French/Inuktitut for use in Kangiqsujaq, and posters and danglers were produced in English and Cree for use in Fort Severn. Overall, the focus group participants were not familiar with the retail promotion items distributed to the communities. However, the majority of participants did recall seeing posters in Kugaaruk and Fort Severn, danglers in Kugaaruk and Kangiqsujaq, and shelftalkers in all three pilot communities.

Food Transportation, Handling and Storage

The retail environment is an ongoing challenge for the Food Mail Pilot Projects. Even though the focus group participants felt that the quality of priority perishable foods had improved in Kugaaruk, they were not satisfied with the overall quality of fresh fruits and vegetables. They said that fresh produce often spoils within a few days of arrival. They suggested that produce would stay fresh longer if it was put into a proper cooler as soon as it arrived in the store. As well, the participants felt that "consumer" education on how to handle food properly would help improve the quality of some foods (e.g., customers do not return frozen items to the freezer, leaving them to partially thaw before being refrozen). And the key informants felt that the store staff had not been trained in the proper handling of the food.

In contrast, the focus group participants in Kangiqsujaq were satisfied with the quality of fresh fruits and vegetables. They indicated that, for the most part, fresh

produce arrived at the store fresh and as a result there was less spoilage. They also felt that the packaging on frozen fruits and vegetables had improved.

Like the focus group participants in Kugaaruk, those in Fort Severn were not satisfied with the quality of fresh produce. They indicated that the quality of these foods was inconsistent and varied depending upon the season; milk and bananas arrived at the stores frozen during the winter and, during the summer, blueberries and strawberries arrived already spoiled. They felt that the quality of perishable foods could be improved if the shipment did not “sit so long” in Pickle Lake and at the airport in Fort Severn upon arrival.

Price Labelling

Another aspect of the retail environment is that of price labelling. The focus group participants in Kugaaruk felt that price labelling had not improved since the pilot project began. While some items, for example sale items, were individually priced, the majority were not and the prices that were posted on the shelves seldom corresponded to the items that were above or even near the labels. Furthermore, the price labels did not reflect the price of items at the cash register. And, the focus group participants said that the cashiers did not always know the price of items advertised in the flyers.

In Kangiqsujuaq, the focus group participants felt that, while price labelling at the Co-op store had improved, it was inconsistent. For example, fresh fruits and vegetables and most boxed products were labelled but frozen products (e.g., juice concentrate) and milk were seldom priced and/or the label was placed over the “best before date.” Several of the participants explained that they “couldn’t be bothered” to find out from a cashier how much an item cost if it was not labelled and would choose a food that had a price label on it regardless of its nutritional value. And lastly, one focus group participant mentioned that the Northern store did not put price labels on individual food items but rather on the shelves. However, poor lighting and limited mobility made it difficult to read the price on the lower shelves.

Overall, the focus group participants in Fort Severn in March 2004 felt that price labelling had gotten worse since the pilot project began. At the Northern store, there were no price labels on the items in the dairy cooler and fresh fruits and vegetables were not priced. There were prices on the shelves but the price on the shelf did not always match the price at the cash register. On the other hand, focus group participants described price labelling at the Washaho Store as “fairly good.” For the most part, each item was priced with the exception of fresh fruits and vegetables. There were no prices on the shelves at the Washaho Store.

The key informants who were interviewed in March 2004 agreed that price labelling in Kugaaruk and Fort Severn was poor. And, while it had improved at the Co-op store in Kangiqsujuaq, it was inconsistent.

Consumer Education

A variety of consumer education activities were offered since the Food Mail Pilot Projects began including taste testing at the grocery store(s), cooking classes, and nutrition activities for children in all three pilot communities. However, the pilot projects were only somewhat effective in improving consumer knowledge as the implementation of this component was limited, particularly in Kugaaruk. Only one focus group participant had participated in a cooking class in Kugaaruk. On the other hand, the majority of participants in Kangiqsujuaq were familiar with or had taken part in the taste testing at the grocery stores and in the cooking classes. In Fort Severn, the community members were familiar with three consumer education activities: the taste testing, cooking classes, and the televised nutrition messages.

The key informants felt that the consumer education component had not been implemented successfully in Kugaaruk but that it had been implemented successfully in both Kangiqsujuaq and Fort Severn. They attributed its success in these two communities to the efforts of the project coordinators. Barriers to the implementation of the nutrition education component identified by the key informants included a lack of interest in activities in Kugaaruk and Kangiqsujuaq and the delay in implementing activities in Kangiqsujuaq.

Household income and levels of formal education are generally more important determinants of healthy eating than is nutrition knowledge. A nutrition education component that is of low intensity and duration is not likely to result in an increased demand for priority perishable foods. Nutrition education can be an important component of the pilot projects if practical, appropriate, culturally relevant and sensitive, and inclusive of country foods.

Assessing the Impact/Effectiveness of Individual Project Components

It is not possible to isolate the impact of measures such as the postage rate reduction, nutrition education, and retail promotion. It is only possible to measure the combined effect of all three components. The pilot projects are examples of an integrated program where strategies affecting the food environment (e.g., reduced prices and increased availability of healthy foods) are reinforced by nutrition education. For this reason it is not possible (nor perhaps even desirable) to isolate or evaluate the relative impact of each individual component using the current study design. If different interventions were implemented in different communities, the relative contribution of each component could be assessed. In lieu of this approach, a detailed process evaluation of each component could help to explain the relative success or failure of the overall project and which components contributed to the success of the intervention.

Retail Sales

As mentioned previously, differences among and changes in the systems that retailers use to track sales make it very difficult and time-consuming to create reliable and useful indicators of sales trends, particularly for fresh fruit and vegetables. The fact that some systems record the numbers of sales and the sales value but not the quantity (weight) of the products sold increases the difficulty of tracking sales data.

Given this limitation in the data one could expect to see an increase in the sale of healthy foods and a decrease in the sale of “junk foods,” assuming that the newly priced foods were adequately promoted. For example, healthier drinks, such as fruit juice and milk, should displace less healthy drinks like pop and crystal drinks and fresh fruit might be substituted for other sweet foods such as cookies and candy bars. However, it is important to note that changes in sales are difficult to predict because they may vary from product to product, from one age/gender group to the next, and from community to community.

Attributing Behaviour Change

As external factors or events were not captured by the evaluation instruments (baseline and second household surveys, focus groups, and key informant interviews), it was not possible to assess their impact on change or lack of change. Furthermore, the documented changes in shipments and purchasing in the pilot communities can not be conclusively attributed to the Food Mail Pilot Projects given the current study design and low to moderate level of implementation of the nutrition education and retail promotion components of the projects. However, available evidence suggests that the pilot projects have had an impact on diet. In order to attribute behavior change to the pilot project interventions, it would have been useful to collect data from comparison communities that did not receive the intervention as well as the level of exposure of individuals to the various project components and materials.

The small sample size of three communities affects the measurement of effectiveness of the interventions in terms of change in diet and health. The size of these communities also makes it difficult to determine from dietary surveys if any change in nutrient intake actually occurred. It would be necessary to observe a large dietary change over a longer period of time in order to reach statistical significance with such a small sample size. On the other hand, the sample sizes of the 24-hour recalls and the methods of data collection were more adequate for detecting changes in the consumption of key foods than changes in nutrient intake. The sample size obtained at baseline, if repeated on another sample post-intervention, would detect a medium to large effect (e.g., a 50% increase in the consumption of fruits and vegetables). Given the amount of change of volume in shipments, particularly in Kugaaruk, it is likely that a repeat nutrition survey would detect a change in nutrient intake (see Figure 1 – Quarterly volumes of shipments of priority perishables to Kugaaruk).

DISCUSSION

Since the implementation of the Food Mail Pilot Projects, the prices of priority perishables have, for the most part, been reduced by at least the amount of the rate reduction of \$0.50 per kilogram. Prices in the pilot communities have remained lower than in nearby communities using the same food supply chain. While the second household surveys and focus groups indicated that community members were, for the most part, not aware of the price reduction on most specific priority perishable foods, they felt that the Food Mail Pilot Projects had contributed to reduced food costs in general. It is not surprising that they have difficulty remembering what prices were two or three years ago or may not notice price changes when price labelling is so poor in northern communities. More effort on the part of retailers, the government departments involved in the pilot projects, the communities, and the local part-time project coordinators could have increased the awareness of the price reductions. This, in turn, may result in greater increases in shipments and purchases than have been achieved.

Poor quality and lack of variety and availability of fresh fruits and vegetables and milk continue to be barriers to purchasing priority perishables. However, the percentage of households that rated the quality of most specific kinds of fresh fruits and vegetables, milk, and eggs as good or excellent increased in all three communities. As well, the percentage of households that indicated there was an adequate variety of fresh fruits and vegetables always or most of the time increased. However, less than half the households in the second set of surveys felt that there was always or usually enough variety.

The data available on perceived changes in purchases and actual purchases, as well as the shipping volumes provided by Canada Post, indicate that there have been improvements in food consumption in the pilot communities. In particular, the findings of the second household survey and focus groups provide evidence of positive changes in food purchasing behaviour, and by implication, consumption. For example, in Fort Severn it appears that the purchases of chocolate bars, potato chips, and pop have decreased since the implementation of the pilot project. Data on retail sales and shipments of specific foods have not been collected. The analysis of these data could serve as a proxy for consumption in the absence of follow-up nutrition surveys.

Prior to the implementation of the pilot projects, food insecurity for both adults and children was much more severe in Kugaaruk and Fort Severn than in Kangiqsujuaq. However, food security in Kugaaruk (for adults) and Fort Severn (for children) improved from baseline to the time of the second household survey. The greatest improvement occurred among the working poor as opposed to those on social assistance or the relatively well-off. While these improvements can not be attributed directly to the pilot projects, the reduction in food prices, increases in the availability and quality of priority perishable foods, and nutrition education will have contributed to them.

On the other hand, food security of both adults and children in Kangiqsujuaq was worse in 2005 than before the pilot project began. Poorer access to country food or drug and alcohol abuse may have contributed to this result. Many more respondents indicated that

they were “extremely concerned” about access to country food, drug and alcohol abuse, and not having enough money for food at the time of the second household survey than in the baseline survey.

Consumer education in isolated communities on its own is unlikely to have a major effect on retail sales. Given the high levels of food insecurity within the pilot communities, change in diet is unlikely to occur without the postage rate and price reduction. Even with the price reduction, low income may still prevent community members from making changes and acting on nutrition knowledge. The effect of a price reduction on sales is usually greater than that of nutrition education and retail promotion. However, hands-on activities such as cooking classes, taste testings, and in-store interventions are more likely to be effective than less interactive types of nutrition education (e.g., distributing pamphlets, teaching, etc.).

The changes that have occurred in Kugaaruk, Kangiqsujuaq, and Fort Severn since the start of the Food Mail Pilot Projects have been positive. They demonstrate that positive change can occur even in communities where the logistical challenges of ensuring that good quality, healthy food is consistently available are considerable. Behaviour change, especially change related to food consumption, takes place slowly and could be influenced by the availability of country foods. However, if the rate of price reduction for priority perishable foods continues, if there is a sustained effort to improve consumers’ nutritional knowledge and skills in food preparation and budgeting, and if retailers increase their efforts to provide an environment and selection of foods that encourage healthier eating, it is possible that the full potential of this integrated, multi-faceted approach to improving health could be realized.

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