



Turkey Farmers of Ontario

CAAP 0018 Project

**Innovating and improving fresh chilled turkey pieces to appeal to,
and remain competitive in, the Ontario market**

Executive Summary

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- *Funding for this project has been provided by Agriculture and Agri-Food Canada through the Canadian Agricultural Adaptation Program (CAAP). In Ontario, this program is delivered by the Agricultural Adaptation Council (AAC).*
- *Agriculture and Agri-Food Canada (AAFC) is committed to working with industry partners. Opinions expressed in this document are those of Turkey Farmers of Ontario and not necessarily those of AAFC.*

Introduction

The Canadian Agricultural Adaptation Program (CAAP) is a five-year (2009-2014) program with the objective of facilitating the agriculture, agri-food, and agri-based products sector's ability to seize opportunities, respond to new and emerging issues and pilot solutions to new and ongoing issues in order to adapt and remain competitive. CAAP funding is \$163 million over five years and is available for eligible projects identified and carried out by the agriculture, agri-food and agri-based products sector.

This project, CAAP 0018, was funded to advance a segment (fresh turkey pieces) of the agri-food market that has often been unavailable at major retail outlets in Ontario. Current statistics (Turkey Farmers of Ontario) show that turkey is only consumed 15 times per year on average by Canadians. There were two main objectives for this project: 1) To identify innovative and new ways of utilizing the excess turkey breast meat in the Ontario marketplace by creating healthy and convenient retail options; and 2) To identify methods to improve the shelf life of fresh chilled turkey pieces. The project was divided into five activities, each having a formal written report. The timeline of this project was from May 2010 to March 2011. The total budget was \$54,500, with 72% funded by Agricultural Adaptation Council (AAC).

Overview of the specific objectives and outcomes of each activity

Activity One – Market Scan [to view full report click here](#)

The objective of activity one was to identify fresh, chilled turkey products currently in the Ontario market and make recommendations for new product development based on the results of the market scan.

The outcomes of activity one included the following recommendations based on the market scan:

- All of the retail sites displayed large (from one to two kilograms) breast options (bone in, skin on). To encourage the consumer to purchase this option, it was suggested that a 1 kg breast (bone in, skin on) could be sold with separate seasoning blends or stuffing (e.g. cranberry, oregano) as a meal kit with preparation instructions and a recipe for four to six servings.
- It was suggested that smaller portions of the full breast, could be offered to consumers, for example, cutlet or steak (bone out, skinless) options. These could be packaged in four to six servings/pieces with cooking instructions and recipe ideas attached to the package. Further to this concept, the cutlets and steaks could be seasoned with a low sodium spice blend or sold with a separate seasoning mix and preparation instructions attached to the package.
- New, innovative and ethnic flavours and seasonings could be applied to fresh stir fry pieces for uses in other recipes such as tacos, quesadillas, stews and casseroles.
- An interesting concept that could be explored is offering turkey options at the display-and-serve counter. A variety of flavoured schnitzel pieces are a great fit for this concept, where the consumer picks out the number and variety of pieces and the retail employee packages it on site.

Activity Two – Flavour Trends [to view full report click here](#)

The objective of activity two was to identify the top five flavour profiles for poultry (specifically turkey), considering the GTA's broader ethnic population.

The outcomes of activity two included these top five international flavour profiles for turkey:

- Asian (ginger, garlic and a low sodium oyster sauce, or mandarin orange, ginger and green onion)

- South American-Peruvian (hot red chili and lime or citrus)
- Indian (medium heat curry blend and/or masala with a roasted flavour)
- Italian (balsamic fig and oregano or sage)
- North American (apple wood smoked maple)

It was recommended to use pre-seasoned turkey breast pieces (180 gram raw) with no further preparation except cooking (instructions for different cooking methods could be included on the package).

Activity Three – Product Development, Taste Panels and Retail Pilot [to view full report click here](#)

The objective of activity three was to use the findings of activity two (trends analysis and flavour profiles) to create fresh, flavoured turkey breast pieces (ready-to-cook) to be tested by a formal consumer research taste panel, then to pilot the final flavoured product in a retail environment over a two-month period.

The outcomes of activity three included:

- The consumers' willingness to purchase and re-purchase the four varieties of fresh, flavoured turkey pieces from a retail environment. The product sold for 14.99/kg (approximately \$9 to \$10/tray).
- The top two flavours purchased were Chili Lime (based on the South American – Peruvian flavour trend) with a 65% uptake rate and Mild Italian (based on the Italian flavour trend) with a 62% uptake rate. The Mild Italian was among the top two identified (Indian Curry was the other) in the consumer research taste panel. The outcome of the Chili Lime, as the top flavour purchased in the retail pilot was a surprise in comparison to the original taste panellists' comments (refers to Activity Three, page four).
- It should be noted that there was consumer interest in the product and uptake during the six-week period from November to December without direct advertising, coupons or in-store product demonstrations. The top two flavours resulting in an uptake rate of greater than 60% is an acceptable outcome and would be considered a success with respect to the situation (no marketing initiatives). This proves consumers are actively shopping and are eager to buy new, innovative, convenient and healthy turkey breast options.
- Another success from the pilot is that the retailer, Longo's, is committed to re-launching the top two flavors this spring (2011) and throughout the summer months. During the grilling season (starting in late April), the product will be formally marketed and advertised. It will be decided post grill season (October) if it will be kept on shelf, throughout the winter months.

Activity Four- Nutrition and Health Benefits [to view full report click here](#)

The objective of activity four was to review and summarize the research related to the nutrition and health benefits of turkey. Based on that information, suggestions were provide suggestions on how to promote turkey as a healthy protein choice.

The outcome of activity four included:

- With one in four Canadians qualifying as obese, making the healthy choice an easy choice for consumers is critical. Nutrition messages need to respond to the consumers' needs for healthy, convenient, fresh protein options in retail.

The following suggestion to promote turkey was identified:

- Fresh, pre-seasoned turkey breast pieces are a great solution for a busy lifestyle. Turkey breast meat is extra lean and an excellent source of protein, vitamin B12 and niacin. It is also a good source of selenium, phosphorus and potassium and can be a low sodium option, depending on the seasonings used.

Activity Five – Shelf Life [to view full report click here](#)

There were three parts to the objective of activity five:

- Part One: To conduct a literature review of how to improve the shelf life of fresh, chilled, seasoned Modified Atmosphere Packaging (MAP) turkey breast products.
- Part Two: To summarize the research to provide viable options to improve the shelf life of the product.
- Part Three: To provide the results (full lab report – activity five, appendix one) and interpretation of the shelf life test based on implementing one of the shelf life improvement options.

The outcomes of activity five included:

- Part One: The combination of modified atmosphere packaging (MAP) with irradiated spices, essential oil, and/or water extract of sumac treatment may promote a desired shelf life extension in fresh, chilled, seasoned turkey, while minimizing undesirable sensory changes.
- Part Two: The viable options summary (page 7 of activity five report) was a result of Dr. Loong-Tak Lim, Associate Professor, Department of Food Science, University of Guelph, being hired as a scientific advisor to assist the CAAP 0018 team with this stage of the project. Dr. Lim recommended excellent articles for the literature review and studied the CAAP 0018 product and packaging and suggested ways to improve the shelf life. The information, gathered during the two meetings at the University of Guelph with Dr. Lim, provided the viable options summary. It gives examples to extend the shelf life of the fresh, chilled, seasoned turkey with minimal changes to the current package, product and transportation stage.
- Part Three: It was decided to prepare a sample of the product with irradiated spices (based on the recommendations from Dr. Lim) with MAP and complete a shelf life test at 4°C (refrigerated) for 15 days.
 - The samples had a ‘fresh meat odour’ until day 15. The total plate count was lower at day 12 compared to test two (non-irradiated with MAP); however, the yeast levels were higher. This could be due to a microbial war being fought with the very high natural levels of bacteria present in all meat. Even though there were high levels of bacteria present on day 15, this number was not indicative of the typical ‘shelf life ending’ numbers. The amount would have to be significantly higher to represent ‘spoiling.’ There were no colour changes.
 - Overall, the sample that used the irradiated spices only showed a difference in total plate count up until day 12 and did not show a significant difference to the final day 15 total microbial load compared to test two. Based on the literature review and promoted use of irradiated spices to decrease microbial load, this was an unexpected result.

Dissemination of Reports

Throughout the duration of the product, the industry stake holders were provided copies of the activity reports as they were completed by Turkey Farmers of Ontario (TFO). The project results from activities one to five were presented by Jane Dummer, RD, at TFO’s Annual Conference on March 11, 2011 in Waterloo, Ontario. To view the presentation [click here](#).