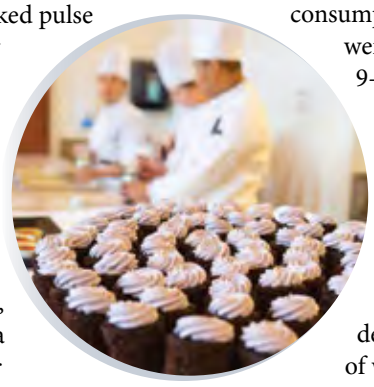
Recipe Development and Consumer Taste Testing of Recipes Containing Edible Beans

Replacing 25% of flour with bean flour or purée in recipes improves nutritional content while maintaining taste and texture of dishes.

RECIPE DEVELOPMENT

When a chef incorporates new ingredients or develops a new recipe, all senses are employed to assess the final results. The resulting dish must look, smell, feel and taste delicious. Food is more than sustenance; it is an experience. This remains true with adding nutritious ingredients, such as pulses, to recipes. The goal of this project was to maximize the quantity of nutritionally-packed pulse flours and purées in a variety of baked dishes without affecting the taste, texture, or performance of each product.



The challenge with replacing wheat flour is the loss of structure provided by gluten. By blending flours, the chef was able to add extra nutrients found in bean flour to many foods, demonstrating the versatility of dry beans in boosting the nutritional profile of recipes.

Approximately 25–40% of wheat flour can be replaced with bean flour or purée, in a variety of recipes without affecting the taste and/or texture of the resulting dish. Although a single dish alone would not achieve the recommended half-cup serving per day, by combining several dishes throughout the day, people could easily and gradually increase their pulse intake level.

CONSUMER TASTE TESTING

Would consumers notice a 25–30% replacement of wheat flour with bean flour or purées?

Gauging consumer opinions and consumption habits aids in dispelling popular misconceptions that pulses are difficult to incorporate or adversely affect taste.

Consumers were invited to taste test three recipes – navy bean perogies, black bean chocolate cake and pinto bean power balls. Surveys outlined their opinion of sensory attributes and assessed their consumption of pulses. Recipes were evaluated using a 9-point scale for aroma, texture and flavour. All recipes received a 7 to 7.5 (*moderately acceptable* to *like very much*) score. These taste tests revealed that most people do not detect a 25% replacement of wheat flour with pulse flours.

Nutritional analysis was also completed on recipes before and after modifications to the recipe. Protein, fibre and iron levels increased with the addition of pulses. The greatest impact was on gluten-free recipes made with rice flours and starches: a 25% replacement of rice flour with bean flour doubled the protein, fibre and iron.

These results demonstrate the flexibility and acceptance of pulses incorporated into a variety of foods and how easily increasing pulse consumption may be achieved. Most of these recipes could be incorporated into cafeteria menus and restaurants to improve nutrition while serving familiar foods. Readily available flours and purées can help reduce required time to prepare pulse-inclusive products. Although the pulse inclusion could potentially be pushed higher per dish, a 25% inclusion with a high sensory acceptance could change how common food service recipes are prepared. Promotion within food service to make these minor modifications could move pulse consumption from once per week to every day in small amounts.

TEN RECIPES DEVELOPED FROM THIS PROJECT

1. Spinach Linguine with Shitake Mushroom Cream Sauce
2. Exotic Fruit Shortcakes with Key Lime Mousse
3. Garlic Roman Flatbread with Jalapeño Brick Cheese
4. Chicken and Bean Pot Pie with Pinto Pie Crust
5. Gluten-Free Shortbread with Baker's Jam
6. Pulled Chicken, Roasted Garlic and Smoked Gouda Perogies
7. Gluten-Free Padano Grana Soda Crackers with Fresh Thyme
8. Almond Flavoured Chocolate Espresso Cake
9. Orange and Navy Bean Crème Brulée
10. Pinto Bean and Chia Seed Power Balls

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DURATION 2 years