

**FROM FARMS TO SCHOOLS: DEVELOPING VALUE-ADDED AGRICULTURAL
PRODUCTS FOR THE SCHOOL LUNCH PROGRAM
FY 2010**

Two of the most important limitations of the school lunch program in most schools are a limited staff budget and limited food preparation areas. Single serve and portion controlled products are important for the Child Nutrition Program, however, few, if any, commercial retail or wholesale fruit or vegetable products are currently packaged to meet these specific needs. The responsibility for the administration of the Child Nutrition Programs in New Jersey resides with the New Jersey Department of Agriculture (NJDA), whereas in most states that program is administered by the State's Department of Education. Therefore NJDA is uniquely positioned to address issues of child nutrition, new product development for the Child Nutrition Program and product procurement for this program.

This project began with a review and identification of current school lunch choices within the New Jersey school system, and development of concept products in a collaboration among NJDA's Division of Food and Nutrition, the Rutgers Food Innovation Center, and the Rutgers Department of Family and Community Health Sciences. Secondary research was conducted on product concepts suitable for school lunch programs nationwide including fresh-cut fruit snacks, fresh-cut vegetable snacks, healthy beverages, healthy soups, healthy entrees, and healthy desserts. Agricultural producers interested in participating in development of products for the School Lunch, Breakfast and Snack programs were identified. Elementary, middle and high school students and school food service directors evaluated four prototype products in focus groups and formal taste testings. Researchers developed preliminary product costing, product packaging concepts and educational fact sheets, and several agricultural processors were contacted to discuss this opportunity. This work will continue under a second FSMIP grant awarded in FY 2012.

FINAL REPORT

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FY 2010 FSMIP Final Report

From Farms to Schools: Developing Value-Added Agricultural Products for the School Lunch Program

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I. Outline of Issue/Problem

This project seeks to address the important issue of child nutrition while improving markets for locally produced agricultural products and assisting school districts to meet the requirements of the United States Department of Agriculture (USDA) Child Nutrition Programs. The USDA Child Nutrition Program establishes specific serving sizes and procurement units for the various food items that make up the detailed nutritious meal planning patterns for the school lunch, school breakfast and after school snack programs. The proposed, "From Farm to Schools: Developing Value-Added Agricultural Products for the School Lunch Program" combined USDA Federal-State Marketing Improvement Program funds with the resources of the New Jersey Department of Agriculture (NJDA) and Rutgers, the State University of New Jersey to research and develop value-added agricultural products to meet the specific requirements of the USDA Child Nutrition Program.

In New Jersey the responsibility for the administration of the Child Nutrition Programs resides within the NJDA. In most states that program continues to be administered by the State's Department of Education. Therefore the New Jersey Department of Agriculture is uniquely positioned to address issues of child nutrition, new product development for the Child Nutrition Program and also issues of product procurement for those programs.

Obesity and poor nutritional intake are nationally-recognized as critical issues in America today. According to national studies, two third of adults and nearly one in three children are overweight or obese. We are consuming too many calories relative to energy expenditure and are not getting the right combination of certain key nutrients that are known to be efficacious. The result is an obesity epidemic, sub-optimal wellness, and increased potential for chronic disease. These problems exist, in part, because most people have a difficult time understanding and managing the impact of their nutrition choices on their health. Healthy foods must be affordable and assessable to students throughout the day, including school.

According to national survey data, the number of overweight children has more than quadrupled since 1960, jumping from 4 percent of the youth population to over 17 percent today. Childhood obesity is a serious health issue that is contributing to an increased prevalence of diabetes, asthma and hypertension in children. According to the Centers for Disease Control and Prevention, nationally, approximately 15% of children and teens age 6-19 are overweight and another 15% are considered at risk of becoming overweight. If left untreated, these children will have a 79% chance of becoming overweight or obese adults with the potential of serious health complications. In New Jersey, a report from the Department of Health and Senior Services indicates that 20% of New Jersey sixth graders are obese and another 18% are overweight; exceeding the national averages. According to the Surgeon General's Vision for a Healthy and Fit Nation of 2010, obesity and overweight are due to numerous factors. In addition to consuming too many calories and not getting enough exercise, genes, metabolism, behavior, environment and culture can all play a role in causing people to be overweight and obese. Identifying the causes and supporting changes in behaviors and the environment are likely to be the most effective actions to combat obesity. Key modifiable risk factors are physical activity, sedentary behavior and diet. National data have shown an increase in the calorie consumption of adults and no change in physical activity patterns. But obesity is a complex issue related to

lifestyle, environment, and genes. Many underlying factors have been linked to the increase in obesity, such as increasing portion sizes; eating out more often; increased consumption of sugar-sweetened drinks; increasing television, computer, electronic gaming time; changing labor markets; and fear of crime, which prevents outdoor exercise. Obese children and adults are at increased risk of type II diabetes, hypertension, stroke, certain cancers, and other conditions. Overweight adolescents often become obese adults.

Outside of the home, children and adolescents spend the majority of their time in school. Therefore, it makes sense that schools provide an environment that promotes healthy nutrition and physical activity habits. However, only a few creative programs are currently being tested in schools across the country.

The USDA's National School Lunch Program (NSLP) and School Breakfast Program (SBP) provide subsidized meals to children in school, and provide these meals free or at a reduced price to children from low-income families. According to USDA data, spending for school lunches, breakfasts and snacks in 2008 totaled nearly \$12 billion. On an average school day in 2008, the NSLP provided lunch to over 30 million children equating to 5 billion lunches annually. More than half of these lunches were served free or at a reduced price. The SBP, which became a permanent federal program in 1975, is offered in a somewhat smaller number of schools and serves fewer children per school. In 2008, 10.6 million students participated in this program daily equating to 1.8 billion breakfasts served annually. The majority of these breakfasts (82 percent) were served free or at a reduced price.

The School Lunch and School Breakfast Programs represented \$11.7 billion in cash and commodities offering 41 million meals a day to the nation's school children. Successfully meeting the specific portion and packaging requirements of these programs represents a large marketing opportunity which could result in a significantly positive economic impact for innovators within U.S. agriculture. If new, more innovative and more nutritious fresh-cut and/or value-added fruits and vegetables products, specifically tailored to the needs of these programs, were able to expand its share of the total demand by just 10 percent then it would represent nearly \$1.2 billion in new product sales.

The produce industry is not meeting the existing serving and packaging requirements

Two of the most important limitations of the school lunch program in most schools are a limited staff budget and limited food preparation areas. Because of these limitations the products that are most attractive to schools require a minimum of labor to prepare and serve. Therefore, being single serve and portion controlled are important product attributes for the Child Nutrition Program. Due to the highly specific serving size and unit packaging requirements of the Child Nutrition Program few, if any, commercial retail or wholesale fruit or vegetable products are currently packaged to meet these specific needs.

A lack of knowledge of the specific requirements of the Child Nutrition Programs is a market barrier to many agricultural producers and agricultural commodity groups. A major component of this proposed FSMIP project will be to identify the serving size and packaging of currently

available fresh and processed produce items and identify the changes necessary to meet the specific requirements of the school lunch program.

The New Jersey Department of Agriculture's Division of Marketing and Development, which works very closely with growers, agricultural marketing cooperatives, wholesalers, retailers and processors, can coordinate closely with State's Child Nutrition Program (also a unit of the New Jersey Department of Agriculture) to work with the product development specialists at the Rutgers, Food Innovation Center to address the lack of industry knowledge of the specific requirements of the Child Nutrition Programs.

Additional examples of crops that can be processed and/or packaged for the New Jersey school lunch, breakfast and snack programs include bell peppers, cranberries, peaches and tomatoes. These crops are produced in significant supply throughout the Garden State, represent nutrient dense profiles and best of all represent products that children will enjoy!

- New Jersey agricultural production rankings, among all 50 states in 2010
 - 2nd in blueberry production (40.0 million pounds).
 - 3rd in bell pepper production (88.2 million pounds).
 - 3rd in cranberry production (48.0 million pounds).
 - 4th in head lettuce production (15.8 million pounds).
 - 5th in peach production (62.0 million pounds).
 - 6th in cucumber production (60.0 million pounds).
 - 7th in squash (summer and winter) production (31.4 million pounds)
 - 8th in tomato production (68.2 million pounds).

II. Description of Problem Approach

A systematic approach was applied to the project. Prior to the initiation of the tasks, a work plan was constructed based on a collaborative team member approach. The tasks and deliverables developed were as follows:

1. Market Research

- a. Review and identify current school lunch choices within the New Jersey school system, and develop concept products as a result of a collaboration between the Division of Food and Nutrition of the New Jersey Department of Agriculture, the Rutgers Food Innovation Center, and the Rutgers Department of Family and Community Health Sciences
- b. Perform secondary research of product concepts suitable to school lunch programs nationwide, including fresh-cut fruit snacks, fresh-cut vegetable snacks, healthy beverages, healthy soups, healthy entrees, and healthy desserts
- c. Identify agricultural producers who are interested in participating in development of products for the School Lunch, Breakfast and Snack programs.

Tasks performed: Team members reviewed secondary research sharing trends in NJ school menu items. A review of literature was performed to understand local and national opportunities and challenges and in market experiences that could assist with providing direction to the objectives of the project.

A significant portion of primary research was also performed. Through attendance at Farm to School conferences and events, networking with numerous chefs and school food service directors at programs throughout the region, and interaction of the core team experts via conference calls and meetings, the team was able to gain knowledge in the area of current school food service needs, regarding product concept and composition.

Farmer participation was identified through a number of mediums:

- Networking with farmers engaged with the Rutgers Food Innovation Center
- Recommendation from the NJ Department of Agriculture
- Proactive one-on-one outreach to farmers focused on New Jersey's primary specialty crops
- Presentations at Agricultural conferences such as the Vegetable Growers Conference and the NJ Department of Agriculture Annual Conference

2. Product Development

- a. Develop prototype products within the product development kitchens of the Rutgers Food Innovation Center food business incubator facility
- b. Develop preliminary product costing
- c. Develop preliminary product packaging concepts

Tasks Performed: The team had a number of product ideas entering the project. The ideas needed to be substantiated and prioritized. Several tactics were applied to accomplish this goal.

- Upon attending the NJ Farm to School Conference in February of 2011, the Primary Investigator was introduced to Chef Anthony Geraci. Chef Tony was the keynote speaker who shared his experience with transforming the cafeteria menu into a locally grown menu throughout Baltimore City schools. Since this Chef had the experience and working knowledge of how to successfully integrate new, healthy locally grown foods into the lunch and breakfast program it made obvious sense to tap into this resource and apply this approach to NJ school cafeterias.
- Chef Tony took a systematic approach by first understanding the specialty crops that were primary in our state and to the farmers who demonstrated interest in the project. He tapped into some of the successful menu concepts that children found highly acceptable. The team also shared the insights of school food service directors as to what type of products would work well in their cafeterias. This data was collected within the focus groups that were conducted as part of the Market Research phase. Chef Tony created the concepts based on the criteria above. The product concepts included:
 - **Eggplant Rollatine with Chunky Primavera Sauce**
 - **Eggplant Parmesan Pizzas**

- **Pasta with Smooth ‘n’ Sassy Garden Pasta Sauce (Very Veggie Sauce)c**
- **Asian Chicken Stir-Fry**
- **Jersey Blues Whole Grain Muffins**
- **El Pollo Loco (fajita filling)**
- **BBerry Yogurt Parfait**

Product costing: Preliminary product costing was performed on ingredients, labor and packaging. Through the research however, it was identified that the cost of products within our current system is excessive for statewide school lunch budgets. According to school food service directors, the cost of ingredients and production of a typical school lunch is between \$1.25 and \$1.50. The preliminary pricing of products exceeds current menu budgets, but as the products are mass produced we are confident that the cost of product will decrease. The project team also continues to search and identify local processors who are interested in producing for the school institution venue. Final pricing will be determined when the producers are determined.

Product Formulas, Packaging and Pricing

Detailed information on product formulas, packaging and pricing can be found in attachment file - Recipes and Costs for FSMIP

3. Consumer Research - Sensory and product Acceptance Studies

- a. Design a sensory analysis and focus group study with a professional focus group moderator
- b. Conduct focus group and sensory research with local school children regarding the potential acceptance of products, utilizing the focus group capabilities of the Rutgers Food Innovation Center food business incubator facility. Consumer research will be conducted via focus groups, in which an opinion-seeking panel discussion is created and where consumers (school children) are asked to share their ideas about new products. Each of two groups will consist of 7 to 12 school children, who will join in a discussion led by a professional moderator.
- c. Conduct one focus group with 7-10 School Food Service Directors where ideas will be presented to understand issues associated with selection, preparation and service of potential products.

Tasks Performed:

Sensory Analysis:

- Sensory analysis was conducted with elementary, middle and high school students. In preparation of the testing a simple score sheet was developed for the students to utilize for rating. Criteria evaluated included: appearance, taste, texture, aroma

- Approximately 50 students participated in the sensory evaluations
- Prior to the testing a permission slip was prepared in accordance with IRB requirements and completed by parent or guardian of all student participants. A full list of ingredients was included in the participation document to communicate potential allergens.
 - Sensory results were tabulated and analyzed. Modifications were made based on scores and verbatims.
 - Concepts were prioritized based on performance

Sensory results are included in attachment file – Sensory School Results.

Focus Groups:

- Two focus groups were conducted with school food service directors throughout the state. Approximately 60 school food service directors shared insights and recommendations into the concept of offering healthy items made from locally grown produce on their menus.

Focus Group #1: School Food Service directors representing 16 districts across the state of New Jersey were invited to attend a focus group round table discussion. The directors who were selected to attend represent districts that contract services and also those who do not engage in contracted service. Representation was also retained from both urban and rural districts and high income and low income districts across the state. Ten districts confirmed and attended the focus group.

Focus Group #2: A focus group and presentation was conducted with members of the state school Food Service – Cooperative – Garden State Cooperative. This is a purchasing cooperative of over 50 school districts. Insights and recommendation were provided by the members. In addition, the members completed a product ranking to inform the working team of the products of greatest interest to them.

Focus group highlights include:

Favorites:

- Popular foods in schools are the popular foods served in food courts and contemporary chain restaurants – pizza, chicken sandwiches (usually breaded), chicken nuggets, tacos and other Mexican fare, wraps, and in some districts main dish salads, such as Chicken Caesar Salad bagged apple slices
- Students like highly seasoned foods, spicy chicken and Buffalo seasoned – Buffalo Chicken Pizza; many use hot sauce

Wishes:

- Single serve pre-portioned fresh fruits and vegetables with dip
- Produce that is unusual – introduces students to new items – something that the students may not have experienced before – Pineapple push-ups are a big hit (fresh pineapple spear on a push-up stick)

Primary Challenges:

- Labor: Labor force is continually reduced. More training is needed.
- Parents: Parents concerned with quality of food served. Requesting healthier foods served. Perception is often unhealthy.
- Looking for vegetable components that are affordable
- Looking for healthier commodities – reduced fat and salt

4. Product Shelf Life Studies and HACCP Plan Development

- a. The Microbiology Laboratory at the Rutgers Food Innovation Center will conduct analysis of finished products, raw materials, and environmental areas for routine required testing. Shelf life studies of new products developed, will be determined at different storage temperatures when necessary.
- b. Develop operational processes based upon a Hazard Analysis and Critical Control Point model, to ensure the safety of products being produced

To participate in the test market in Vineland, final commercial packaging could not be determined. At the scale of the test, only a small production run was made. For the yogurt cups, the parfaits were put together manually in plastic beverage cups with lids and had a 4-6 day shelf life. In a commercial facility, yogurt will typically have a 60 day shelf life, refrigerated. The Eggplant Pizza components were assembled at the school cafeteria. The sauce could be kept in the frozen state for up to one year, as could the breaded eggplant rounds. The shredded cheese that was used was refrigerated in pouches and good for up to 6 months unopened. When a processing partner is identified these products can have final packaging developed and formal shelf life studies can be conducted.

See attachments for preliminary HACCP plans for Eggplant Parmesan Pizza and BBerry Yogurt Parfaits.

5. Product Commercialization

- a. Agricultural Processors will be identified that can supply raw materials for products and/or produce them at their own facility or at the Rutgers Food Innovation Center incubator facility
- b. Agricultural Processors will be trained by Rutgers Food Innovation Center staff

Tasks Performed:

Several **agricultural processors** were contacted to discuss this opportunity. Conversations occurred with most to share concept and discuss interest. This task is ongoing.

They include:

Comarco Products
Camden, NJ
Manufacturer of processed vegetable products

Cabot Creamery
Montpelier, Vermont
Manufactures yogurt and other dairy products

Chobani Yogurt
Norwich, New York
Manufactures Greek yogurt

Safeway Fresh Foods
Vineland, NJ
Manufacturer of fresh cut fruit/vegetable products

Limpert Brothers
Vineland, NJ
Manufacturer of fruit and confection products

F&S Produce
Rosenhayn, NJ
Manufacturer of fresh cut fruit and vegetable products

Johanna Foods
Flemington, NJ
Manufacturer of yogurt and beverages

Campbell Soup
Camden, NJ
Manufacturer of soups, sauces, beverages, etc.

The Agricultural Producers identified and who participated in this project included:

Kevin Flaim – Flaim Farms, Cumberland County, NJ - Vegetables
Santo John Maccherone – Circle M Farm, Salem County, NJ - Peaches
New Jersey Blueberry Growers – Atlantic and Surrounding Counties, NJ
New Jersey Cranberry Growers – Burlington and Surrounding Counties, NJ

The products identified for development based on food service director advice, local commodities available, and School Food Service Chef recommendations include:

- **Eggplant Rollatine with Chunky Primavera Sauce**
Flaim Farms eggplant slices rolled around a delicious blend of low-fat ricotta cheese and savory sautéed greens, topped with a sauce made with a harvest of Jersey Fresh vegetables and herbs ...tomatoes, zucchini, fennel and basil
- **Eggplant Parmesan Pizzas**
Rounds of eggplant slices topped with a smooth tomato-vegetable sauce and cheese

- **Pasta with Smooth ‘n’ Sassy Garden Pasta Sauce (Very Veggie Sauce)**
Enriched pasta tossed with a very veggie tomato sauce secretly loaded with a bounty of farm fresh Jersey vegetables, including zucchini, onion, fennel and basil
- **Asian Chicken Stir-Fry**
A taste of the Far East...juicy chunks of boneless chicken breasts marinated in a pungent blend of garlic, soy sauce, tamari, and Circle M Farms peach preserves and peach cider
- **Jersey Blues Whole Grain Muffins**
A harvest of whole grains including whole wheat flour and oats, studded with Jersey Fresh sweet blueberries - *Appropriate for vending*
- **El Pollo Loco**
Zesty chunks of boneless chicken breasts and Flaim Farms fire-roasted sweet peppers, marinated in a flavorful combo of Circle M Farm peach salsa, crushed red pepper, onion and cilantro
- **BBerry Yogurt Parfait**
Layered creamy low-fat yogurt and Limpert Brothers crimson cranberry/beet compote, topped off with Jersey blueberries and crunchy low-fat granola – *Appropriate for vending*

6. Education and Marketing

- a. Educational fact sheets will be developed regarding new value-added agricultural products. Website page will be developed and posted on the NJ Department of Agriculture’s Website the Rutgers Food Innovation Center’s website and others. Press release will be created and issued to multiple sources throughout the state. Announcement of these new products will be communicated through a blast email to all NJ School Food Service Directors and distributors.

Tasks Performed:

Educational fact sheets were designed and developed for four products. They include Eggplant Rollatine, Smooth and Sassy Pasta Sauce, El Pollo Loco (fajita filling) and Eggplant Parmesan Pizza. Fact sheets were designed for students in grades K-3rd, 4th through 7th, high school students and food service directors/teachers/parents. Documents are attached. The preliminary fact sheets were distributed at forums in which team attended to present the project. Once final products are developed which will be accomplished in Phase II of the project, the fact sheets will be modified based on final composition and nutritional profiles.

Extensive marketing was executed for the project. Publications that picked up the project included:

The Packer – National Publication - <http://www.thepacker.com/fruit-vegetable-news/marketing-profiles/New-Jersey-develops-school-program-164900176.html?ref=176>

The Produce News- <http://producenews.com/index.php/component/content/article/9-news-section/story-cat/8009-healthy-school-meals-processed-with-nj-produce>

Press of Atlantic City - http://www.pressofatlanticcity.com/education/vineland-students-taste-test-meals-in-bid-for-healthier-food/article_f8e36b0a-6beb-11e1-90b8-0019bb2963f4.html

<http://foodinnovation.rutgers.edu/BridgetonFICSchoolMeals.pdf>

NJ Today TV Segment -

<http://www.youtube.com/watch?v=1vGCO6CzMyA&feature=youtu.be>

USDA Blog

New Jersey Agricultural Experiment Station Annual Report

http://njaes.rutgers.edu/pubs/annual-reports/2011_NJAES_Annual_Report.pdf

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NJ Spotlight - <http://www.njspotlight.com/stories/12/0320/0204/>

The Daily Journal -

<http://foodinnovation.rutgers.edu/Students%20sample%20The%20Daily%20Journal%20thedailyjournal.pdf>

Presentations given at:

2011 and 2012 NJ Farm to School Conferences - see attached

Yale University – “Scaling Sustainability” – Successes and Challenges of Implementing Farm to School in New Jersey

New Jersey Vegetable Growers Conference – 2012

Once the products are commercialized for the marketplace and ready for distribution, we will execute additional marketing communications to announce the launch.

III. Description of Cooperators/Partners

Logan Brown, Economic Development Representative

Logan Brown from the New Jersey Department of Agriculture had oversight of this project, and managed a role in identifying others to participate as advisors or participants.

Since 2002 Logan Brown has held the position of Team Leader of the New Jersey Department of Agriculture's Economic Development Work Group responsible for the development and stewardship of the State of New Jersey's Economic Development Strategy for Agriculture. The program annually administers over \$1 million dollars in federal market and economic development grants. Logan has twenty-two years experience planning and implementing programs for the Jersey Fresh marketing and public relations program. Responsibilities included retail promotions, trade show planning and coordination, advertising design, special event development and numerous other marketing and public relations projects. As Administer of the State of New Jersey's international market development program for fresh and processed foods, Logan is responsible for the planning, development and implementation of innovative overseas market development programs. He has conducted targeted market research, trade shows and market entry projects in internationally within Bahrain, Belgium, Bermuda, Canada, Czech Republic, France, Germany, Mexico and the United Kingdom. Responsible for the coordination of reverse trade missions for the Fukui Prefecture of Japan, the Tesco Hypermarkets of the Czech Republic and wholesale importers from Slovakia, Poland, Hungary, the People's Republic of China and representatives of the Taiwan Institute.

Biographies of the primary coordinators that were engaged in this project are as follows:

Diane Holtaway, Associate Director, Client Services, Rutgers Food Innovation Center

Diane Holtaway holds 30 years of experience in the food industry. In her current role as Associate Director of Client Services at FIC she oversees the development and execution of business and technical services essential to the growth of client companies. Her strong skill sets in business development, marketing research, trend analysis and marketing plan development have proven to be instrumental to start-up and established companies. Diane has served as a senior team member to a highly diversified range of food businesses, including the dairy industry, the premium livestock industry, and other agricultural and specialty food categories. Prior to this position, Diane has held management positions with Campbell Soup Company and Unilever, as well as an array of food editorial publications.

Diane Holtaway replaced Lou Cooperhouse upon his resignation from the Rutgers Food Innovation Center.

In addition to Diane, several members of the Rutgers Food Innovation Center contributed to the project. They include:

Julie Elmer – Associate Director – Food Technology

Sho Islam – Client Service Specialist

Donna Schaffner – Associate Director – Food Safety and Training

Shawn Marshall – Food Safety Specialist

Rose Tricario, Director, Division of Food and Nutrition, NJDA

Rose Tricario became the Director of the Division of Food & Nutrition at the NJ Department of Agriculture on March 1st, 2012. She earned a Bachelor of Science degree in Hotel, Restaurant and Institutional Management from Johnson and Wales University in Rhode Island. Her career

began as a restaurant manager for Spirit Cruises in New York City, but soon changed to school nutrition.

Rose worked with Chartwells in the Marlboro, North Brunswick, and Edison school districts, then moved on to Jackson, a self-operated district in Ocean County. She worked as a school food service director for 16 years. Rose also served as President of the New Jersey School Nutrition Association in 2009-2010.

At the Division of Food & Nutrition, Rose oversees School Nutrition Programs, The Child and Adult Care Food Program, The Summer Feeding Program, The State Food Purchase Program & USDA Foods for Food Banks, and USDA Foods for Schools.

Rose Tricario replaced Emma Davis Kovacs upon her resignation of the New Jersey Department of Agriculture.

In addition to Rose, members of the New Jersey Department of Agriculture who participated in the project included:

Janet Hawk – Coordinator – School Nutrition Program

Jacqueline Bricker – Division of Food and Nutrition

Kathleen Morgan, Ph.D., Chair Department of Family and Community Health Services, Rutgers University

Kathleen Morgan has been with Rutgers Cooperative Extension since 1993; she is an associate professor and serves as chair of the Department of Family and Community Health Sciences. She received her doctoral degree from Drew University, and her master's and bachelor's degrees from Rutgers University. Kathleen has lectured at the national and state level on topics related to nutrition. Her main area of focus is women's health, particularly osteoporosis research and education, health disparities, obesity, food systems and phytonutrients. Her recent publications include, "Sarcopenia, Nutrition and Resistance Training: Their role in successful aging." "Promoting Youth Physical Activity in the Classroom through a Comprehensive Walking Program" and "Health Disparities." Kathleen has served in leadership positions at the national and state level with various professional associations.

In 2011, she received the Rutgers Cooperative Extension Faculty Award for Excellence.

IV. Summary of Results

Two years ago this project was identified as a compelling proposition to address new benefits for the state of New Jersey's agricultural producers and school aged children. Due to the poor nutritional status and health concerns effecting children today, overlaid by the need to identify new sales venues for local growers, the concept of producing healthy school menu items using local agriculture was conceived.

The concept was shared with food service directors across the state, local growers, agricultural advocates and local processors. The concept was consistently met with great enthusiasm, but skepticism did also prevail.

Results/Lessons Learned

1. There is great interest across the state by food service professionals and educators to serve healthy foods in school cafeterias made with local agriculture.
2. Affordability is key. School food service budgets are minimal. A means to deliver healthy products within budget is mandatory.
3. School food service directors are performing a terrific job with planning and delivering foods to students. To reside within their budgets, it is however extremely difficult to serve a menu of healthy foods across breakfast and lunch on a daily basis. They deliver what they can afford and prepare. In order to provide additional healthy foods grown with local agriculture – modifications to policy will likely need to occur and revised systems put into place.
4. A multi-dimensional approach is needed to enable to facilitate the opportunity. The process includes: concept/product development, concept validation by students and food service operators, availability of agricultural products, committed agricultural producers, committed food processors, committed means of distribution, development and execution of effective marketing plan
5. Kids taste buds are evolving. They are not just interested in pizza and chicken nuggets. Students are open to trying new unfamiliar dishes that use ingredients such as eggplant, peppers, cranberries, beets, kale, collards, etc.
6. In order to be successful with a new menu trial, the product should first be presented to the student in a small sample size, so to not overwhelm the student.
7. For students to change their eating behavior, education must be a component of the process. Materials such as fact sheets for students and teachers and cafeteria promotional materials should also be components of the effort.
8. Throughout each step of the project it became apparent that several barriers need to be addressed to make this highly compelling concept feasible. Some of the key challenges include:
 - Labor: Labor force is continually being reduced. More training is needed.
 - Food Service Directors desire products that do not require a lot of labor. Directors do not have the ability to train adequately. They also have limited personnel on staff.
 - Parents: Parents are concerned with quality of food served. They often request healthier foods to be served. Their perception is that the food served is unhealthy.
 - Healthy is more expensive. It is very difficult to serve healthy menus on the budget available.
 - USDA commodities and products developed by commodity manufacturers should fit the guidelines that directors are bound to meet
 - Most school food service directors prefer ready to serve or ready to heat. Minimal preparation.
 - Product format differs among school systems. Some directors prefer single serve, while others prefer “whole” or multi-serve packages

- Processors are skeptical of this opportunity. In order to make this system work, one must prove out the business proposition. During this phase of the project, it has been difficult to gain attention and commitment from processors. They recognize that the profit margins are likely to be low if commodity product is not part of the equation.
 - Early adoption by farmers is not as difficult but is not easy either. Prior to starting the project, the team had identified a number of growers interested in exploring the opportunity. We call them our “early adopters”. They believe in the concept and see this as a new opportunity for themselves, as well as providing the community with foods that can provide good nutrition and good taste.
 - It is critical to gain the attention of legislators and other individuals who have the power and inclination to modify policy and create new programs and systems.
9. For all of the above reasons, it was agreed by the working team that great strides were achieved with this initiative. Most of the project objectives were met, but due to several challenges such as current policy issues and lack of interest by processors, a second application was proposed to enable the team to continue with pursuing our goals.
 10. The end goal is establishing a system to develop, commercialize and market healthy food to school districts throughout the state and region that utilize local agriculture. This task, although it seems to be the right thing to do by all, is not at all an easy task to accomplish. It is clear that passion, determination and knowledge are critical to achieving our goals. We have come so far with delivering on many of the objectives set forth , but we have found to make these food items a reality for millions of students across the region, more work need to be done and we are grateful to be granted additional time and dollars to accomplish this task.

Evaluation of the project:

Specific objectives include the following:

- Design and develop value-added agricultural products that meet the nutritional and cost requirements of the National School lunch program, which may include portion-controlled fresh-cut fruit snacks, fresh-cut vegetable snacks, healthy beverages, healthy soups, healthy entrees, and/or healthy desserts.
- Evaluate the potential suitability of value-added produce items for vending machine distribution in schools
- Conduct consumer research that demonstrates product sensory acceptance by school children of various age groups and preparation and distribution by School Food Service Directors
- Conduct analytical research that demonstrates acceptable product shelf life
- Identify New Jersey agricultural producer(s) who will supply and will market the value-added products for the program’s products
- Identify processors who can commercialize and manufacture products for sale to the New Jersey school system.
- Prepare and disseminate fact sheets to school food service directors; prepare and execute marketing plan

The project was evaluated by measuring whether the tasks outlined were accomplished. All of the tasks were accomplished except for identification of commercial processors/final packaging for all of the products and execution of a final marketing plan. These two tasks are key

deliverables that will be addressed in our current proposal – **From Farms to Schools - Developing Value-Added Agricultural Products for the School Lunch Program – Phase II.**

It should be noted that the final deliverable of the project was stated as follows:

Project Deliverable

- At least two new products that meet the serving size, nutritional, and purchasing requirements of the Child Nutrition Program will be introduced into the School Lunch, School Breakfast or after school snack program and be made commercially available to New Jersey school systems. These products will also be well received by students and school food service directors.

A total of three products were actually marketed and served in the Vineland School district. They included: Breakfast BBerry Parfait, Eggplant Parmesan Pizzas and Very Veggie Pasta Sauce.

During phase two we will continue to identify processors to commercialize these products and bring them to a great number of school districts throughout the state and region.

V. Current and Future Benefits

Upon completion of this project, processes and policies should be available to encourage and deliver healthy menu items to schools which incorporate locally grown agriculture benefiting the wellness of a vast number of children and the financial status of growers.

According to October 2011 New Jersey Department of Agriculture data, 687,490 school lunches were served daily across the state. An additional 192,806 breakfasts were served daily. These figures do not represent the tens of thousands of products that are purchased by students and faculty on an a la carte basis, and snacks served during or after school through cafeteria and vending machines. Based on preliminary 2011 data, \$280,526,367 was spent on cash and commodity menu offerings for lunch and breakfast in New Jersey. **If just 1% of value-added products served were grown by New Jersey farmers, this would represent an additional \$2.8 million in sales for local processors and producers** while delivering critically needed healthy, good tasting foods on school menus.

VI. Recommendations for Future Research

As discussed, the work team developed and submitted a proposal to continue the works as outlined in phase one of the project. The proposal was well received by the USDA and funding was awarded so that follow-up stages can be addressed. Future goals include:

1. Establishing a “*value-added farm to fork*” process that will serve as a model for the state and other regions, by identifying a means to integrate locally grown and processed foods into the commodity school food service program
2. Conduct commercial scale runs of developed products with identified processors
3. Identify distribution systems for commercialized products to enable purchasing throughout the state
4. Formulate and execute a marketing plan for products
5. Communicate this program throughout the state to agricultural producers

VII. Project Beneficiaries

The primary beneficiaries of this initiative are farmers, food processors and children attending school.

Farmers: According to the most recent data available (2011), cash receipts for fruits and vegetables produced on Garden State farms total \$380 million. New Jersey ranks 15th in the nation for vegetable production and 12th for the production of fruits and berries. 730,000 acres of land are farmed with over 10,300 active farms. Acreage and farm establishments represent all types of agricultural production.

Food Processors: There are hundreds of food processors located in New Jersey and the surrounding region. Most are not approved USDA commodity processors or fruits, vegetables and bakery items. Presently, less than 10 processors exist on a national basis that produce school lunch commodity products of the type identified and developed within this project. Most of these processors are not local. Those that are local to this region include:

Tabachnick's Fine Foods – Somerset, NJ

Have Your Cake and Eat it Too – Marlboro, Maryland

School Aged Children who purchase meals at school: According to October 2011 New Jersey Department of Agriculture data, 687,490 school lunches were served daily across the state. An additional 192,806 breakfasts were served daily. These figures do not represent the tens of thousands of products that are purchased by students and faculty on an a la carte basis, and snacks served during or after school through cafeteria and vending machines. Based on preliminary 2011 data, \$280,526,367 was spent on cash and commodity menu offerings for lunch and breakfast in New Jersey.

VIII. Additional Information

Product formulas, packaging and pricing

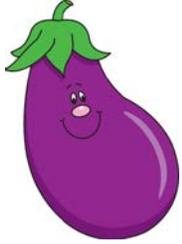
2012 Farm to School Conference Presentation

Sensory Results

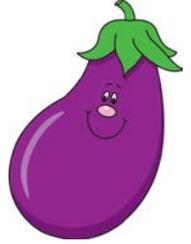
HACCP plans

Fact Sheets – El Pollo Loco, Smooth & Sassy Pasta Sauce, Eggplant Rollatone, BBerry Yogurt Parfait

Jersey Fresh School Meals:



Eggplant Rollatini



Have **YOU** tried the



Eggplant Rollatini yet?

You should! It's really yummy and good for you.

It's an eggplant all rolled up



with cheese and tomato sauce.

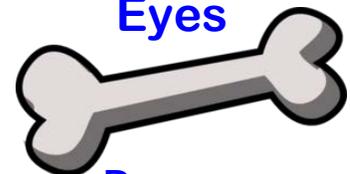


Yum!

Its good for your



Eyes



Bones

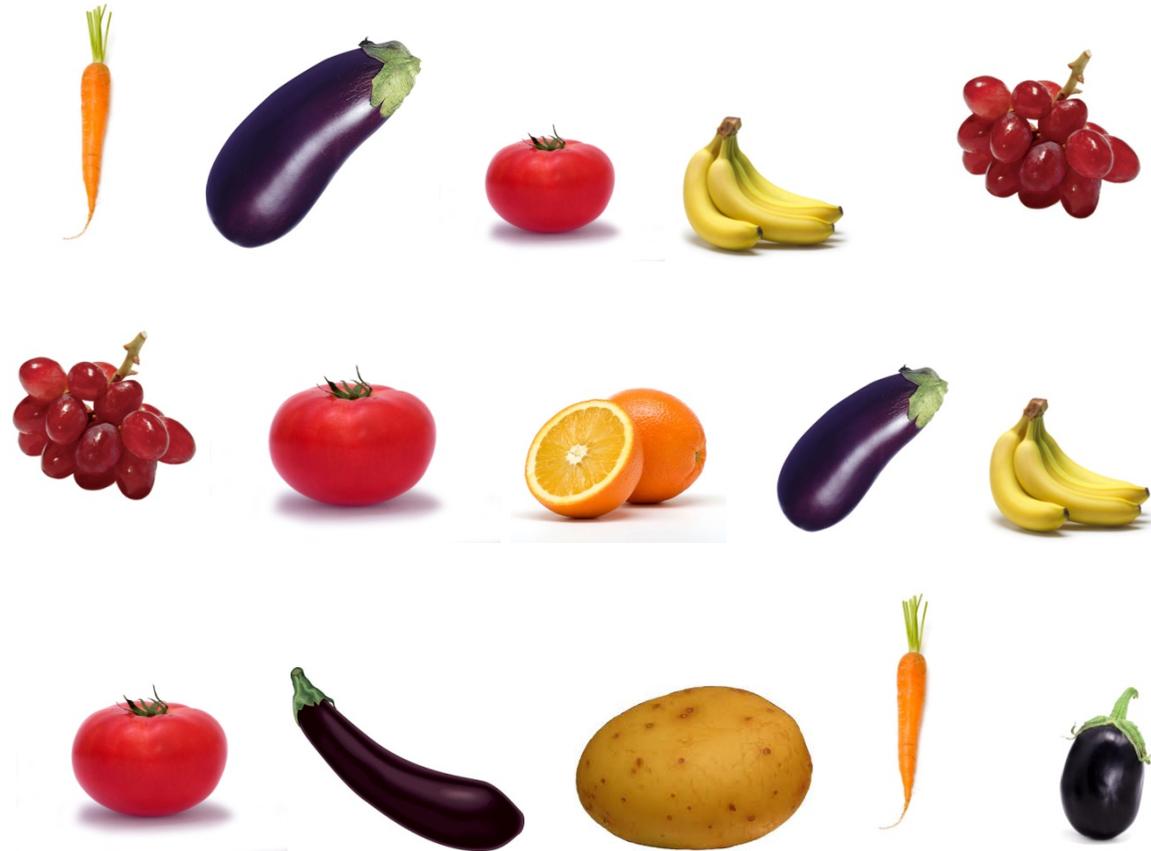


and Teeth!

Eggplants grow in different colors and shapes.



Can you find and circle the eggplant?



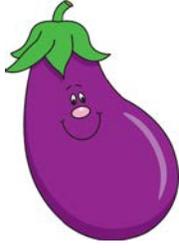
RUTGERS

New Jersey Agricultural
Experiment Station

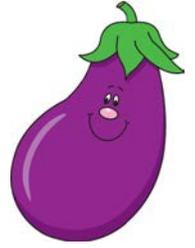


FOOD INNOVATION CENTER

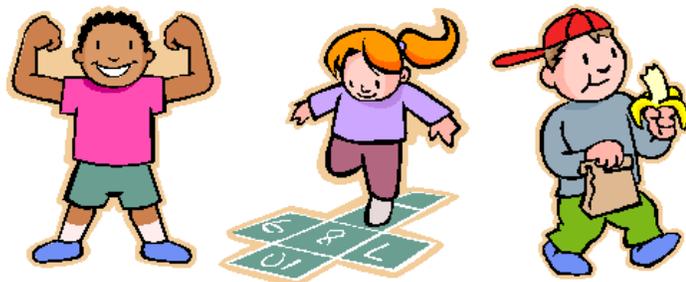
Jersey Fresh School Meals:



Eggplant Rollatini



FUN FACT: Did you know that 'Eggplant' is actually a **fruit**? It is closely related to potatoes and tomatoes. It grows on small plants and comes in different sizes, shapes, and **colors**. Most eggplants you see are purple but they can also be green, white, or striped. Eggplant has **vitamins and nutrients** that keep you **healthy** and gives you **energy**.



So what's in this Eggplant Rollatini?



The Eggplant Rollatini served in your school lunch is made with fresh New Jersey eggplants, tomatoes, and cheese.



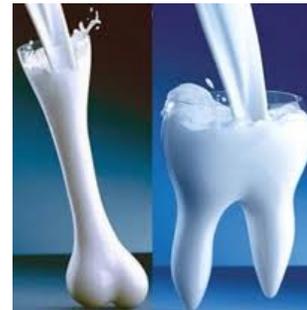
How is it good for you?



Tomatoes are good for your eyes



Cheese is good for Your bones and teeth.

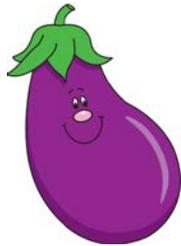


Eggplants help keep you healthy!

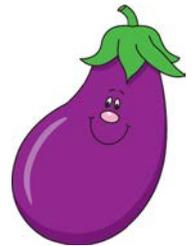




Jersey Fresh School Meals:



Eggplant Rollatini



Eggplant Rollatini is an eggplant dish made with Jersey fresh eggplants, tomatoes, and cheese. The New Jersey Department of Agriculture has teamed up with the Rutgers Food Innovation Center and New Jersey agricultural producers to bring to your school **value added** products made from **local agriculture** that meet the nutritional and cost requirements of the National School Lunch Program, and that fit the student taste preference.

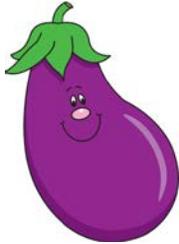


What's in this rollatini?

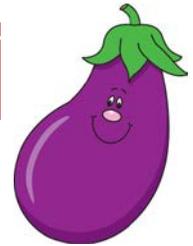
The eggplant rollatini is comprised on an eggplant rolled up and stuffed with ricotta cheese and fresh herbs and topped with tomato sauce. It is both delicious and good for you. This nutritious lunch option is packed with vitamins and minerals that you need to support a healthy growing body. The nutrients contained in this meal work together to boost your immunity and metabolism, promote healthy eyes and strong bones, and give you the energy you need to get through the day.



Jersey Fresh School Meals:



Eggplant Rollatini



Eggplant benefits:

Eggplant is low in calories and is a non-starchy fruit that is cooked as a vegetable. It contains a large amount of water, which helps maintain healthy skin and hair. Eggplants contain vitamin C, B-1, B-3, and B-6, which work to boost the immune system and rate of metabolism. They are also an excellent source of dietary fiber that helps promote a healthy digestive system. Eggplants also have magnesium and potassium which are good for the heart, and contain certain phytochemicals that have antioxidant properties and help reduce blood cholesterol and improve blood flow.

You can also create other delicious foods with eggplants!

Mini Eggplant Pizza

You will need:

- 1 Eggplant cut and peeled into 4 half-inch thick slices
- 4 teaspoons olive oil
- ½ teaspoon salt
- 1/8 teaspoon black pepper
- ¼ cup pasta sauce
- ½ cup shredded part-skim mozzarella cheese



Directions

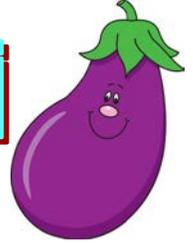
Preheat the oven or toaster oven to 425 degrees F. Brush both sides of the eggplant with the oil and season with the salt and pepper. Arrange on a baking sheet and bake until browned and almost tender, 6 to 8 minutes, turning once. Spread 1 tablespoon of pasta sauce on each eggplant slice. Top with the shredded cheese. Bake until the cheese melts, 3 to 5 minutes. Serve hot.



Jersey Fresh School Meals:



Eggplant Rollatini



The Eggplant Rollatini: All You Need to Know And More

History:

The New Jersey Department of Agriculture has teamed up with the Rutgers Food Innovation Center and New Jersey agricultural producers to bring to your school value added products made from local agriculture that meet the nutritional and cost requirements of the National School Lunch Program, while still fitting the student taste preference. Calling “Eggplant Rollatini” a value added product simply means that the rollatini has raw ingredients that went through some processing to add value to them, and because it derives from local agriculture, the eggplants and tomatoes are from local New Jersey farms. Local agriculture offers the benefit of reducing our carbon footprint while teaching the children where their food comes from and what types of food are grown in their local area. This particular dish also introduces a new vegetable to most children, and it helps them grow comfortable with diversifying their palate and developing good eating habits.

Nutritional Information:



- **Eggplant:** a healthy new food to incorporate into children’s diets that has a plethora of vitamins and minerals that boosts immunity, metabolism, and promotes healthy skin and proper digestion.



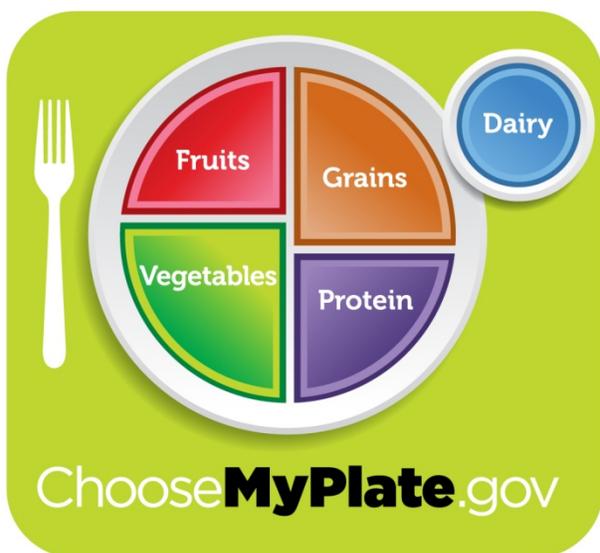
- **Tomatoes:** a bright red source of lycopene, a powerful antioxidant, and vitamin C. Good for the eyes and the immune system.

- **Cheese:** A delicious dairy product with lots of calcium to promote healthy bones and teeth.



USDA's MyPlate: A Visual Guide For Healthier Eating

These lunch options were also introduced due to the childhood obesity epidemic. These meals adhere to the USDA guidelines for the National School Lunch Program. They also model the new recommendations of USDA's MyPlate.



Recommendations include:

- Enjoy your food but eat less.
- Make half your plate fruits and vegetables
- Make half of your grains whole.
- Switch to low fat or fat free dairy.

These are simple easy to follow directions to help the American population consume healthier meals.

This icon is a new tool to help Americans make better choices.

Incorporating "Eggplant Rollatini" Into Your Curriculum

The students will be more accepting of this new product if it is introduced in a variety of ways across the curriculum. These are a few suggestions for incorporating into the school day:

- Integrate "Eggplant Rollatini" into your geography about New Jersey.
- Use "Eggplant Rollatini" while teaching about health and the benefits eating healthy food.
- Learn about farming and agriculture with "Eggplant Rollatini's" local ingredients.

More Resources:

Healthier US School Challenge, Recipes, Food Service Resources, and Child Care Resources

<http://healthymeals.nal.usda.gov>

School Food Service Resources

<http://www.healthyschoollunches.org/resources/schools.cfm>

School Lunch reform Efforts

<http://www.schoollunchinitiative.org/resources>





Jersey Fresh School Meals:

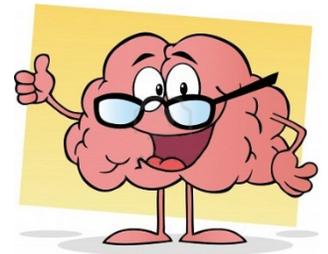
El Pollo Loco

The Mexican fajita in your school lunch is helping your body in **lots** of ways!



Yummy bites of chicken
give you **ENERGY**

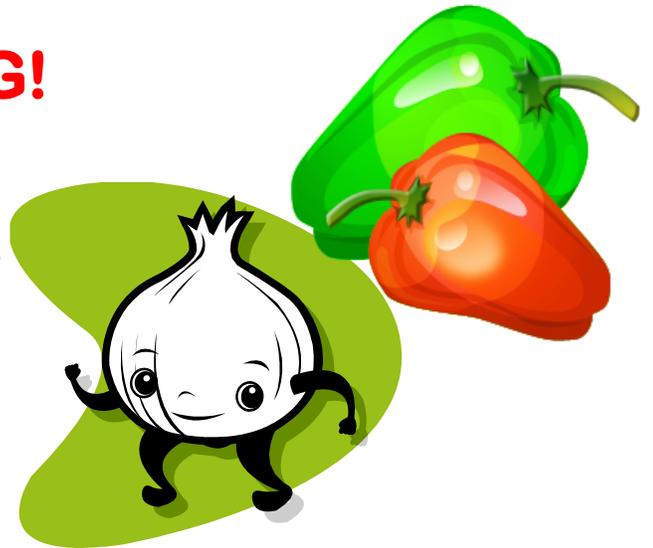
And help your
Brain grow **SMART**



And your heart
grow **STRONG!**

Bright and Colorful Veggies

are **YUMMY** and **HEALTHY**



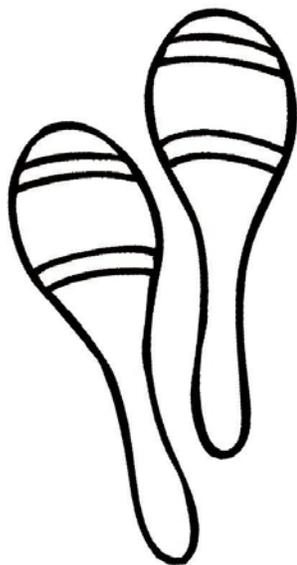
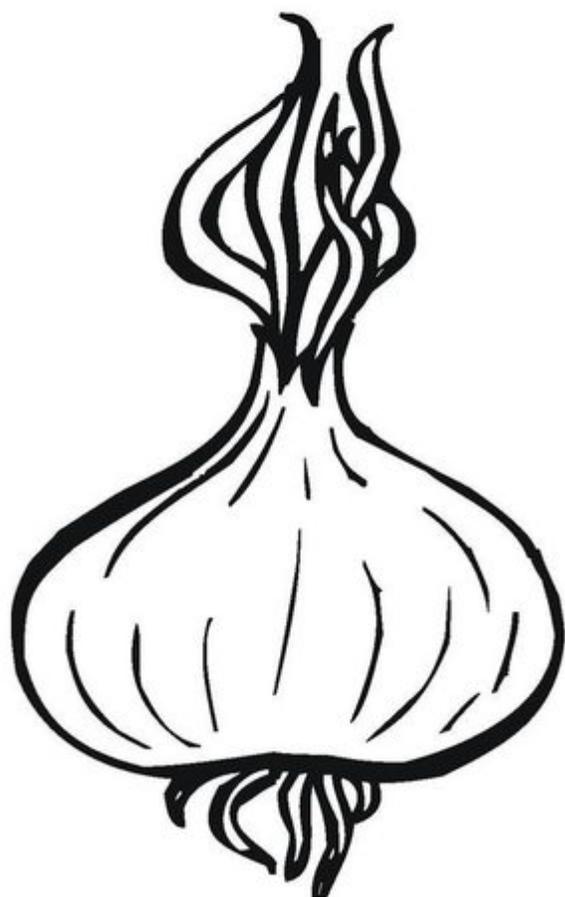
...and grown in New Jersey!



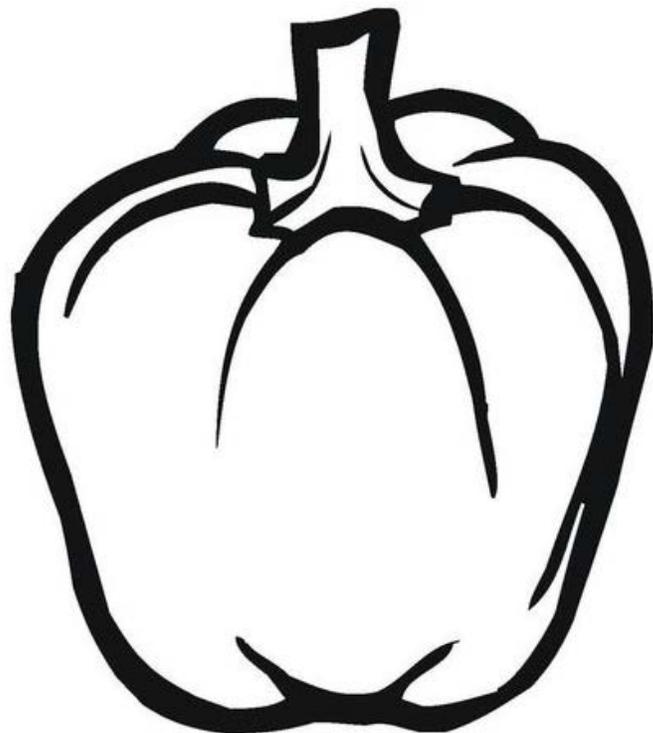
Fun Pollo Loco Coloring!!!



Onion



Bell Pepper





Jersey Fresh School Meals: El Pollo Loco

The Mexican chicken wrap up served in your school lunch is a **value added product**, and it's made from **local agriculture**. It's delicious, and part of a healthy, nutritious school lunch.

Value Added Product: any agricultural product that has added value due to some processing or packaging

Local Agriculture: the vegetables are from local New Jersey farms!

So what's *really* in the fajita filling?

Zesty Chicken



With **PROTEIN** for your **MUSCLES**

Fire Roasted Sweet Peppers



Jam Packed with Vitamin C
From: Flaim Farms, Vineland, NJ

Peach Salsa



Mouth-Wateringly Good...

From: Circle M Farm, Salem, NJ

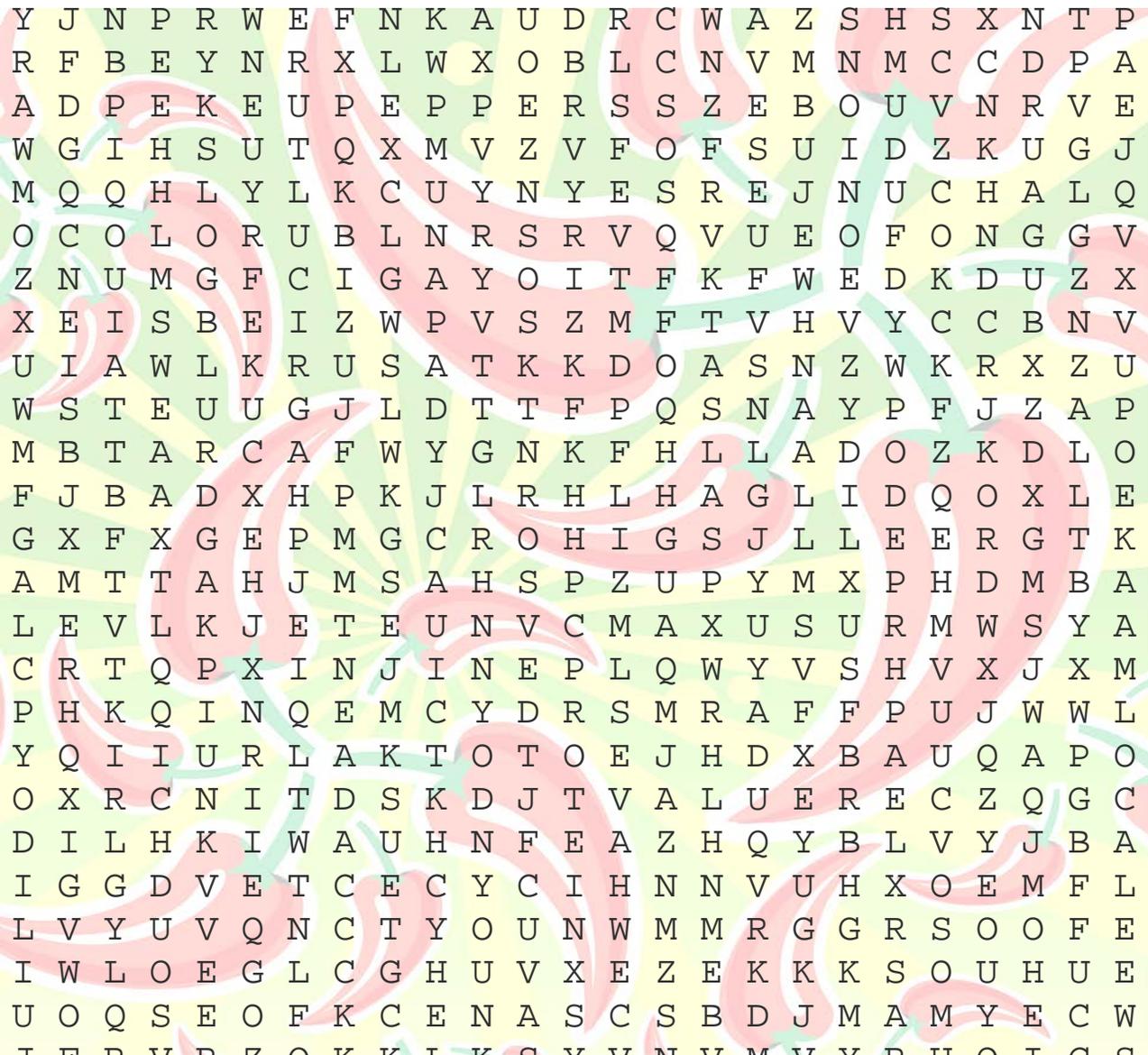


Crushed Red Pepper,
Onion, Cilantro



Colorful, Flavorful, and Healthful!

El Pollo Loco Word Search!



ADDED
AGRICULTURE
CHICKEN
COLOR
FARMS
FLAVOR
FRESH

HEALTHY
JERSEY
LOCAL
LUNCH
ONIONS
PEPPERS
PROTEIN

SALSA
SCHOOL
TASTY
VALUE
VITAMINS



Jersey Fresh School Meals: El Pollo Loco

What it is:

This new Latino-style fajita dish is spicing up your school lunch with a healthy dose of variety. It's a delicious, nutritious, **value-added product** made from **local agriculture**. This means that the raw ingredients are taken from local New Jersey farms and processed to add value.

What it's made of:

- Zesty chunks of boneless chicken breast
- Fire Roasted Sweet Peppers from Flaim Farms (Vineland, NJ)
- Peach Salsa from Circle M Farms (Salem, NJ)
- Crushed red pepper, onions, and cilantro.



Why it's good for you:

Chicken: This is a great source of protein to help your muscles to maintain growth.

Peppers & Onions: According to the new MyPlate, half of your plate should be fruits and vegetables. These peppers help you make that requirement and are full of vitamin C and minerals that work to help your body fight off germs and help your bones and teeth.

Peach Salsa: This zesty topping is another way to add fruits and veggies to your plate.

Crushed Red Pepper, & Cilantro: These colorful and flavorful items spice up this dish and make it out of the ordinary

Fun With Fajitas: Beyond School Lunch

You can change some ingredients to make your very own Favorite Fajita Recipe!

INGREDIENTS:

Protein: Chicken, Steak or Shrimp or whatever you may choose

Veggies: add your favorites like yellow, red, or green peppers and onions!

Your Favorite Salsa: Sweet or Spicy can completely change the flavor!

Tortilla To Wrap It All Up: Choose a whole grain variety

PREPARATION:



Fully cook your protein of choice.

Sauté veggies and protein on low heat.

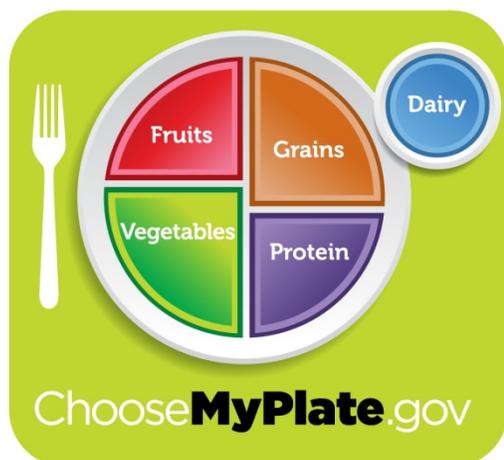
Add in salsa and any other spices .

Wrap up in a tortilla and enjoy!

You can make enough for your whole family's dinner or just enough for your own serving for lunch!



USDA's MyPlate: A Visual Guide For Healthier Eating



This icon is a new tool to help Americans make better choices.

Recommendations include:

- Enjoy your food but eat less.
- Make half your plate fruits and vegetables.
- Make half of your grains whole.
- Switch to low fat or fat free dairy.



Jersey Fresh School Meals: El Pollo Loco

The Fajita: All You Need to Know And More

History:

The New Jersey Department of Agriculture has teamed up with the Rutgers Food Innovation Center and New Jersey agricultural producers to bring to your school value added products made from local agriculture that meet the nutritional and cost requirements of the National School Lunch Program while still fitting the student taste preference. Calling “El Pollo Loco” a value added product simply means that the fajita has raw ingredients that went through some processing to add value to them, and because it derives from local agriculture, most of the vegetables are from local New Jersey farms. Local agriculture offers the benefit of reducing our carbon footprint while teaching the children where their food comes from and what types of food are grown in their local area. This product shows children that food can be both delicious and healthy while helping them consciously adopt good eating habits.

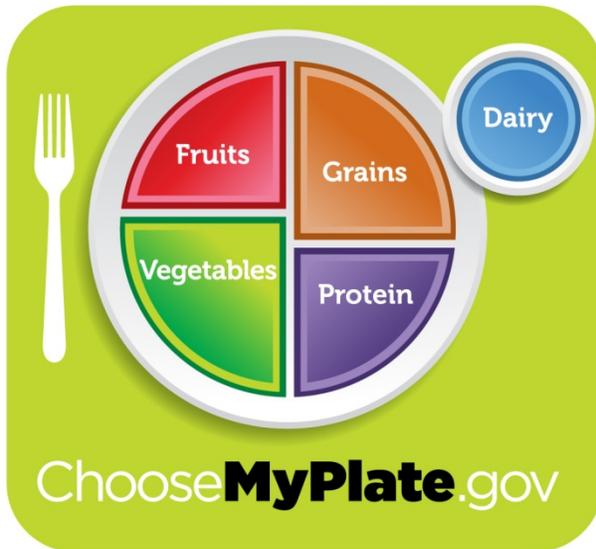
Nutritional Information:

- Chicken: a wholesome and filling source of protein that keeps the children’s muscles growing and their appetites at bay during the school day
- Peppers: a colorful way to introduce children to local, delicious vegetables that are bursting with vitamin C. Vitamin C functions as an antioxidant that boosts their immunity while promoting healthy bones and teeth.
- Peach Salsa: This puts a spin on the traditional fajita, making it both sweet and spicy. It is an easy way to incorporate more fruits and vegetables into the children’s diet.
- Onion, Crushed Red Pepper, Cilantro: These add flavor and fun to the children’s meal, making it more appetizing to them.



USDA's MyPlate: A Visual Guide For Healthier Eating

These lunch options were also introduced due to the childhood obesity epidemic. These meals adhere to the USDA guidelines for the National School Lunch Program. They also model the new recommendations of USDA's MyPlate.



This icon is a new tool to help Americans make better choices.

Recommendations include:

Enjoy your food but eat less.

Make half your plate fruits and vegetables

Make half of your grains whole.

Switch to low fat or fat free dairy.

These are simple easy to follow directions to help the American population consume healthier meals.

Incorporating "El Pollo Loco" Into Your Curriculum

The students will be more accepting of this new product if it is introduced in a variety of ways across the curriculum. These are a few suggestions for incorporating into the school day:

- Integrate "El Pollo Loco" into your geography or history lessons about Mexico.
- Include "El Pollo Loco" in your culture fair
- Celebrate Cinco De Mayo with "El Pollo Loco"
- Learn about farming and agriculture with "El Pollo Loco's" local ingredients

More Resources:

Healthier US School Challenge, Recipes, Food Service Resources, and Child Care Resources

<http://healthymeals.nal.usda.gov>

School Food Service Resources

<http://www.healthyschoollunches.org/resources/schools.cfm>

School Lunch reform Efforts

<http://www.schoollunchinitiative.org/resources>



Yogurt Parfait



BEAUTIFUL BLUEBERRIES!

gettyimages

gettyimages



gettyimages

<http://www.mbbac.org/>



CRAZY CRANBERRIES!

gettyimages



gettyimages

gettyimages



YUMMY YOGURT!

gettyimages



gettyimages

<http://charlesisherwoodsyoogurts.hop.tumblr.com/>



gettyimages



GREAT GRANOLA!

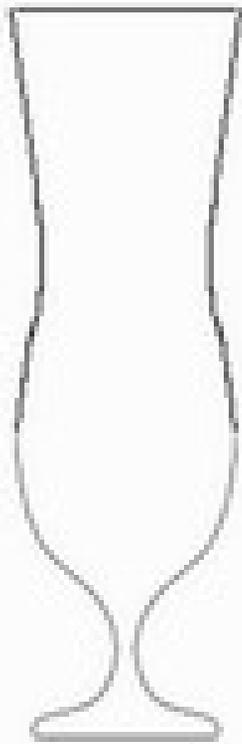
gettyimages

<http://runordie.wordpress.com/>



BLAZING BEETROOT JUICE!

gettyimages



**CAN YOU
MAKE YOUR OWN YOGURT PARFAIT?**

**How many Blueberries can you find
on this page?**



B-Berry Yogurt Parfait



Made with local blueberries and cranberries grown in New Jersey!



Blueberries!

Cranberries

Yogurt

Granola

Blueberries grow on bushes in clusters. They grow in North America and Europe between mid April and late September.

The cranberry is a Native American wetland food which grows on trailing vines. They grow in bogs or marshes . They are grown in North America, Canada, and Chile. They are grown year round.

Yogurt has a lot of live bacteria to help your intestines digest the food you eat. It is made with milk in a process called fermentation.

Granola is a healthy mixture of rolled oats sunflower seeds and lots of natural sweeteners to make it tasty. It will give you the energy you need throughout the day and help you digest your food!

Beetroot Juice!



Beet Juice has been proven to be healthy for your heart. The juice comes from a vegetable that grows underground. It comes from India and Britain. Beetroot can be grown most of the year.

SAY HOOORAY FOR A YUMMY YOGURT PARFAIT!

www.itsybitsy.com



www.itsybitsy.com



www.itsybitsy.com



www.itsybitsy.com



Y R R E B E U L B Y V S V I H
 Y B E E T R O O T E U U A A O
 Q R A T X I R I G Z Y O L X S
 C C R G R E S E W E G I U E Q
 C R M E C U T J S E R C E E F
 B G O I B A G R K H E I A L O
 T A P P B N E O S E N L D T O
 H E C L S J A T Y A E E D T D
 S B E T W N I R H L B D E L K
 S S Y E E U T B C T I P D N W
 W L N S R R Y S X H F A R M S
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 W S S U Z X V I V O V Z F J L
 E O R V M V T D Z E M W F O G

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BACTERIA

BEETROOT

BLUEBERRY

CRANBERRY

CROPS

DELICIOUS

ENERGY

FARMS

FOOD

FRUITS

GRANOLA

HEALTHY

NEWJERSEY

RECIPES

VALUEADDED

VEGETABLES

YOGURT

Draft HACCP plan for FSMIP Eggplant Pizza

Product Description

Process Category	Fully Cooked, Not Shelf Stable
Product Name	Eggplant Parmesan Pizza
Brief description of the product	Fully Cooked Eggplant Pizza
Ingredients and processing methods Used	<p><u>Ingredients Breaded Eggplant:</u> Eggplant, Soybean Oil, Bleached Wheat Flour, Water, Whole Liquid Egg, Yellow Corn Flour, Salt, Dried Whey, Dextrose, Romano and Parmesan Cheese (Pasteurized Milk, Cheese Cultures, Salt, Sodium Silicoaluminate {Anticaking agent}, Sorbic Acid {Preservative}, and Enzymes, Spices, Dried Parsley, Soybean Oil, Dried Yeast, Leavening [Sodium Aluminum Phosphate, Sodium Bicarbonate) Dried Garlic, Paprika Extract (Color) Spice Extract and Annatto Extract (Color), Parfried in Soybean Oil</p> <p><u>Ingredients Very-Vegi Tomato Sauce:</u> Crushed tomatoes with salt added and basil, Onion, Zucchini Squash, Yellow Squash, Fennel , Peach Cider (Peaches, sugar, water, all natural peach flavoring, citric acid, erythorbic acid), Red and Green Bell Pepper, Olive Oil, Parsley, Salt, Garlic, Basil, Black Pepper, Oregano, Thyme.</p> <p><u>Ingredients: Mozzarella Cheese:</u> Low-Moisture Part-Skim Mozzarella Cheese (Cultured Pasteurized Part-Skim Milk, Salt, Enzymes</p> <p><u>Processing methods:</u> Eggplant Pizza assembled in layers with sauce and cheese. Product is then portioned, packaged, cased and frozen.</p>
Intended use	New Jersey Farms to Schools – Developing Value-Added Agricultural Products for the School Lunch Program
Type of Package	Pre-formed trays, film covered & sealed
Shelf-life	12 months if kept frozen. Recommended storage temperature 0° F - 15° F
Intended consumers & use	School Lunch Program – 2011 – 2012. To be thawed then heated to internal temp of 165° F.
Labeling Instructions (Critical factors for Food Safety)	Keep frozen; thaw under refrigeration. Heat to Internal Temperature of 165° F Degrees Prior to Consuming. Labeled to indicate allergens: Egg, Wheat, Milk, and Soy
Method of distribution	Frozen temperature shipping truck (3 rd party shipper)

HACCP Team: August, 2012

Diane Holtaway, Associate Director, Rutgers Food Innovation Center

Donna F Schaffner – HACCP Specialist: Rutgers Food Innovation Center

Bruce A Masters – Microbiologist / QA Manager: Rutgers Food Innovation Center

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Hazard Analysis Worksheet- Fully Cooked, Not Shelf Stable

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Receiving Frozen Ingredients (Eggplant)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No (temperature at receiving is a CP at this point: handled by a pre-requisite program) C: No P: No	B: Receiving program, Approved supplier C: Allergen control program; P: No history of foreign material in ingredients to this time	Receiving Log shows temperature of frozen ingredients to be $\leq 20^{\circ}$ F on arrival to facility Receiving program, Approved supplier	B: No, subsequent heating & chilling steps will better control biological hazards
Receiving Refrigerated Ingredients (Vegetables & Mozzarella Cheese)	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: No C: No P: No	B: Receiving program, Approved supplier C: Allergen control program; P: No history of foreign material in ingredients to this time	Receiving Log shows temperature of refrigerated ingredients to be $\leq 40^{\circ}$ F on arrival to facility Receiving program, Approved supplier	B: No, subsequent heating & chilling steps will better control biological hazards
Receiving Dry Ingredients (Canned Tomatoes & Dry Spices)	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: No C: No P: No	B: Receiving program, Approved supplier C: Allergen control program; P: No history of foreign material in ingredients to this time	Receiving Log (L.O.G on file)	B: No, subsequent heating & chilling steps will better control biological hazards
Receiving Packaging materials	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	Receiving program, GMP's, Letter of Guarantee	Receiving Log (L.O.G. on file)	No
Storage Frozen Ingredients (Eggplant)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No - (temp.during storage is a CP at this point: handled by a pre-requisite program) C: No	B: Pathogen growth likely if storage temperatures not maintained at level sufficient to preclude their growth	Storage Freezer Temperature Log	B: No, subsequent heating & chilling steps will better control biological hazards

Draft HACCP plan for FSMIP Eggplant Pizza

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
			P: No			

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Storage of Refrigerated Ingredients (Vegetables & Mozzarella Cheese)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No - (temp.during storage is a CP at this point: handled by a pre-requisite program) C: No P: No	B: Pathogen growth likely if storage temperatures not maintained at level sufficient to preclude their growth	Storage Cooler Temperature Log	B: No, subsequent heating & chilling steps will better control biological hazards
Storage of Dry Ingredients (Canned Tomatoes & Dry Spices)	B: None C: None P: Pests such as insects and rodents	B: None C: None P: pests	B: No C: No P: No	P: No history of pest control findings in manufacturing areas	P: Pest control program in place	No
Storage Packaging materials	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	GMP's, Inventory program in place		No

Batch/Weigh Frozen Ingredients (Eggplant)	B: Pathogens (Salmonella) C: None P: None	B: Pathogens (Salmonella) C: None P: None	B: No C: No P: No	B: Prolonged ambient temperatures may allow pathogens to proliferate to unacceptable levels P: No history of foreign material found in this product	B: Limited time during production and Subsequent cooking step will eliminate this hazard Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	B: No, Final best pathogen control at the cooking step
Batch/Weigh Refrigerated Ingredients (Vegetables & Mozzarella Cheese)	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	B: Prolonged ambient temperatures may allow pathogens to proliferate to unacceptable levels P: No history of foreign material found in this product	B: Limited time during production and Subsequent cooking step will eliminate this hazard Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	No

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Batch/Weigh Dry Ingredients (Canned Tomatoes & Dry Spices)	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	GMPs followed	Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	No
Formulate Sauce	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	GMP's in place	Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	No

Assemble/ Combine Ingredients	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	B: No C: Yes P: No	C: Allergens can cause illness or death if eaten by unaware consumer	GMPs followed	C: No, Final best Allergen control at the labeling step
Cooking Sauce - Kettles	B: None C: None P: None	B: Pathogens - Listeria monocytogenes, E.coli 157:H7, Salmonella, Staph.aureus C: None P: None	B: Yes C: No P: No	B: potential survival and/or growth of pathogens if not properly cooked	B: Cook product using validated time/temperature controls (temp. of sauce reaches ≥165° F) Cook Log	Yes, CCP1B
Chilling Sauce	B: None C: None P: None	B: None C: None P: None	B:No C: No P: No	B: Outgrowth of spores not likely in tomato sauce	Chill product to <40° F for quality purposes	No

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If “yes” assign a number and indicate B, C or P
Assemble Eggplant/ Sauce/ Mozzarella	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	B: No C: Yes P: No	C: Allergens can cause illness or death if eaten by unaware consumer	GMPs followed	C: No, Final best Allergen control at the labeling step

Portioning / Fill trays	B: Pathogens (Listeria monocytogenes) C: None P: None	B: Pathogens (Listeria monocytogenes) C: None P: None	B: No C: No P: No	Facility conducts environmental monitoring; no history of <i>L.mono</i> on production equipment or in process room	Environmental monitoring record	No
Cover/Seal Trays	B: None C: None P: None	B: None C: None P: None	No	Visual Quality check: film seals are intact on each tray	Leakers are noted on QA Inspection Log/ Rework Log	No
Coding / Labeling of Finished Product	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	B: None C: Allergen – Egg, Wheat, Milk, and Soy P: None	C: Yes	C: Wheat has been known to cause allergic reaction in some individuals	C: Allergen statement on label declaring Wheat Label CCP Log	C: Yes, CCP2C
Case-pack trays of finished product	B: None C: None P: None	B: None C: None P: None	No	Product is sealed in trays at this point, and being handled in a sanitary manner	Packing room is maintained at a temp less than 50° F	No
Cases of finished product frozen in Blast Freezer	B: None C: None P: None	B: Pathogen – (Listeria monocytogenes) C: None P: None	No	Product frozen for Quality purposes, and to ensure that if present (unlikely), Listeria monocytogenes is controlled	Freezer log	No
QA inspection	B: None C: None P: None	B: None C: None P: None	No	Quality check at this step, and verification of risk-based controls being in-place	QA Log	No

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If “yes” assign a number and indicate B, C or P
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Draft HACCP plan for FSMIP Eggplant Pizza

Rework	<p>B: Pathogens – (Listeria monocytogenes)</p> <p>C: None</p> <p>P: None</p>	<p>B: Pathogens – (Listeria monocytogenes)</p> <p>C: None</p> <p>P: None</p>	No	Rework only during same day. All cooked sauce not packaged is discarded at end of shift so pathogens do not have time to proliferate to unacceptable levels	QA Log	No
Cases palletized, moved into finished product freezer	<p>B: None</p> <p>C: None</p> <p>P: None</p>	<p>B: None</p> <p>C: None</p> <p>P: None</p>	No	For Quality purposes, Product temp. is maintained frozen solid	Storage Freezer Temperature Log	No
Storage of finished product in Freezer	<p>B: None</p> <p>C: None</p> <p>P: None</p>	<p>B: Pathogens - (Listeria monocytogenes)</p> <p>C: None</p> <p>P: None</p>	<p>B: Yes (elevated temperature during storage could allow the potential growth of <i>Listeria</i>)</p>	<p><i>B:</i> Pathogen <i>Listeria monocytogenes</i> growth is potentially possible if product is not stored frozen solid</p>	Storage Freezer Temperature Log	Yes, CCP5B
Pre-shipment Review	<p>B: None</p> <p>C: None</p> <p>P: None</p>	<p>B: None</p> <p>C: None</p> <p>P: None</p>	No	Verification step that all risk-based controls were observed and CCPs were documented before product is released for shipment	Pre-Shipment Review Log	No
Shipping to customers (frozen)	<p>B: None</p> <p>C: None</p> <p>P: None</p>	<p>B: None</p> <p>C: None</p> <p>P: None</p>	No	Company must create and keep customer records for Traceability/ Recall purposes	Packing / Shipping Log	No

Draft HACCP plan for FSMIP Eggplant Pizza

Critical Limits, Monitoring, And Corrective Actions – CCP1

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 2 (B) Cooking of Marinara Sauce	Sauce having Salmonella or other pathogens due to insufficient heat treatment	Sauce cooked to temperature of $\geq 165^{\circ}$ F	Temperature of Sauce checked using calibrated thermometer	Thermometer inserted into kettle of sauce prior to finish of the heating step	Once per each kettle of sauce cooked	QA or designated personnel (will record on Cook Product Temperature Log)	If sauce temperature found to be $\leq 165^{\circ}$ F, it will be left in kettle and continue to be cooked until temp is measured to be $\geq 165^{\circ}$ F
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Time and temperature in kettle will be adjusted to ensure that temperature of the product reaches $\geq 165^{\circ}$ F before that cook cycle is completed.] CCP will be under control after corrective action (CA) has been taken [Sauce temperature will be measured to meet or exceed 165° F before it is removed from the kettle or continued in the production process.] Measures to prevent re-occurrence have been taken N/A No deviating product enters commerce [Designated personnel will verify sauce cook temperatures prior to signing the Pre-shipment review to allow any finished product to leave the facility.] 						

Verification and Record Keeping – CCP1

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 1 (B) Cooking of Very-Vegi Tomato Sauce	Designated person performs Direct Observation of person checking the temperature of cooked Sauce, once each production day.	Cooked Product Temperature Log	QA Reviews Consumer complaint file for reports of illness due to Salmonella or other pathogens	Record of results (annual report) from Consumer Complaint File Review
	Production Mgr or designated personnel checks the Sauce Cook Log to ensure that each kettle was measured at $>165^{\circ}$ F.	Cooked Product Temperature Log	Samples of finished product will be tested for Salmonella on a monthly basis	Micro Lab testing reports
	QA or designated personnel calibrate thermometers prior to use per each day of production	Thermometer Calibration Log		
	Production Manager or designated personnel checks the Corrective Action Log to ensure it was completed, if a deviation occurred	Corrective Action Log		
	QA or designated personnel check for CCP1 monitoring & verification before product is shipped	Pre-shipment Records Review will be marked on the Cooked Product Temperature Log		

Draft HACCP plan for FSMIP Eggplant Pizza

Critical Limits, Monitoring, And Corrective Actions – CCP2

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 2 (C) Allergen label	Consumer with allergy eating product because of finished product pkg not having a label to declare presence of allergen	Label on each package of finished product declaring correct allergen statement	Each package checked for presence of label declaring correct allergen statement	Visual inspection	Each unit that is packed	Packing line personnel (will initial Packing Log to indicate monitoring was done)	Un-labeled package will have a label applied. No un-labeled pkg will be released for shipment.
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Cause will be investigated and label machine adjusted by maintenance as needed] CCP will be under control after corrective action (CA) has been taken [Finished units will not be placed into cases until a correct label has been applied.] Measures to prevent re-occurrence have been taken [Equipment failure will be addressed by maintenance, labels examined for good adhesion; vendor contacted if failure is found to be due to labels.] No deviating product enters commerce [Designated personnel will verify that all units are labeled per random check of shipping cases before the Pre-shipment review is signed to allow any product to leave the facility.] 						

Verification and Record Keeping – CCP2

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 2 (C) Label on product	Spot-check (by Designated personnel) of 3 cases per each batch to determine that they contain label with correct allergen statement	Initials on Finished Product Inventory Log indicating Label Verification was performed	Review of Consumer complaint file for reports of un-labeled package or of illness due to un-declared allergen (conducted by QA)	Record of results (annual report) from Consumer Complaint File Review
	Designated personnel perform Direct Observation of the person checking the cases for allergen labels once each production day.	Initials on Finished Product Inventory Log indicating Direct Observation was performed		
	Check for CCP2 monitoring & verification before product is shipped	Pre-shipment Records Review marked on Finished Product Inventory Log		

Draft HACCP plan for FSMIP Eggplant Pizza

Critical Limits, Monitoring, And Corrective Actions – CCP3

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 3 (B) Frozen Storage of Finished Product	Growth of <i>Listeria monocytogenes</i> due to temperature abuse during long-term cold storage	Product stored frozen prior to use	Storage Freezer checked for temperature $\leq 20^{\circ}$ F	Temperature recording system	Continuous monitoring (Alarm notifies monitoring company and designated personnel will be called to inform if freezer temp. goes high or if recorder is not functioning.)	QA personnel (will print record of storage freezer temperature and record on Storage Freezer Temperature Log)	If freezer temp. exceeds 20° F for ≥ 0.5 hr, product will be checked to ensure that it is still frozen solid. If freezer is not able to hold temperature $\leq 20^{\circ}$ F, product will be moved to a functional freezer.
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Cause will be investigated and repairs to freezer will be completed before it goes back into use.] CCP will be under control after corrective action (CA) has been taken [Product found to be thawed (but still remaining $\leq 40^{\circ}$ F) will be labeled for immediate use, with warning "do not re-freeze" and a use-by date of no more than 2 weeks applied.] Measures to prevent re-occurrence have been taken [If Freezer fails to maintain temperature multiple times it will be removed from service and replaced with a more reliable unit.] No deviating product enters commerce [Only product that remains frozen solid will be shipped to customers with normal labeling. Designated personnel will verify finished product storage temperatures before the Pre-shipment review is signed to allow any finished product to leave the facility.] 						

Verification and Record Keeping – CCP3

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 3 (B) Frozen Storage of Finished Product	*Direct Observation of QA personnel checking the temperature of Storage Freezer is not required because we have continuous monitoring equipment in operation.	Storage Freezer Temperature Log	QA Reviews Consumer complaint file for reports of illness due to <i>Listeria</i>	Record of results (annual report) from Consumer Complaint File Review
	Production Mgr or designated personnel checks the Storage Freezer Temp Log to ensure that all finished product was stored at $\leq 20^{\circ}$ F.	Storage Freezer Temperature Log	Samples of finished product will be tested for <i>Listeria</i> on a monthly basis	Micro Lab testing reports
	Production Manager or designated personnel checks the Corrective Action Log to ensure it was completed, if a deviation occurred	Corrective Action Log		
	QA or designated personnel check for CCP5 monitoring & verification before product is shipped	Pre-shipment Records Review marked on Storage Freezer Log		
	QA or designated personnel open 3 cases to verify product is frozen solid before loading for shipment	Pre-shipment Review		

Product Description

Process Category	Ready To Eat (RET), Not Shelf Stable
Product Name	BBerry Yogurt Parfait
Brief description of the product	Yogurt Parfait with Blueberries and B-berry topping
Ingredients and processing methods used	<p><u>Ingredients:</u> B Berry w Cane Sugar: Water, cane sugar, cranberries, beet base, modified food starch, xanthan gum, sodium benzoate, potassium sorbate, propylene glycol, citric acid, natural and artificial flavors, calcium chloride, egg yolks.</p> <p>Yogurt (Cultured pasteurized Grade A low fat milk and nonfat milk solids, contains active yeast cultures: L. Bulgaricus, S. Thermophilus, Bifidobacterium, L. Acidophilus, L. Casei)</p> <p>Blueberries</p> <p>Granola (rolled oats, sunflower seed, brown sugar, apple juice, honey, soybean oil, cinnamon, imitation vanilla extract, iodized salt.</p> <p>Contains Egg, Milk and Soy.</p> <p><u>Processing methods:</u> Ingredients are weighed/portioned and assembled in layers in packaging cup, sealed, cased and refrigerated for storage and shipment.</p>
Intended use	New Jersey Farms to Schools – Developing Value-Added Agricultural Products for the School Lunch Program
Type of Package	Cup Style container with lid and small poly bag.
Shelf-life	7 Days if kept Refrigerated. (Pending Shelf life Study) Recommended storage temperature 34° F - 44° F
Intended consumers & use	School Lunch Program – 2011 – 2012
Labeling Instructions (Critical factors for Food Safety)	Keep Refrigerated. Contains Egg, Milk and Soy.
Method of distribution	Refrigerated temperature controlled shipping truck (3 rd party shipper)

HACCP Team: August, 2012

Diane Holtaway, Associate Director, Rutgers Food Innovation Center
 Donna F Schaffner – HACCP Specialist: Rutgers Food Innovation Center
 Bruce A Masters – Microbiologist / QA Manager: Rutgers Food Innovation Center
 Julie Elmer – Food Technologist: Rutgers Food Innovation Center
 Shawn Marsh – Sanitation Manager: Rutgers Food Innovation Center

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

Hazard Analysis Worksheet- Ready To Eat (RTE), Not Shelf Stable

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Receiving Frozen Ingredients (Blueberries)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No (temperature at receiving is a CP at this point: handled by a pre-requisite program) C: No P: No	B: Pathogens likely on raw meat P: No history of foreign material in ingredients to this time	Receiving Log shows temperature of Blueberries $\leq 20^{\circ}$ F on arrival to facility Receiving program, Approved supplier	B: No, subsequent heating & chilling steps will better control biological hazards
Receiving Refrigerated Ingredients (Yogurt & B-Berry)	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: No C: No P: No	B: Receiving program, Approved supplier C: Allergen control program; P: No history of foreign material in ingredients to this time	Receiving Log (L.O.G on file)	B: No, subsequent heating & chilling steps will better control biological hazards
Receiving Dry Ingredients (Granola)	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: Pathogens (Clostridium botulinum, Clostridium perfringens, Staph. aureus) C: None P: None	B: No C: No P: No	B: Receiving program, Approved supplier C: Allergen control program; P: No history of foreign material in ingredients to this time	Receiving Log (L.O.G on file)	No
Receiving Packaging materials	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	Receiving program, GMP's, Letter of Guarantee	Receiving Log (L.O.G. on file)	No
Storage Frozen Ingredients (Blueberries)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No - (temp.during storage is a CP at this point: handled by a pre-requisite program)	B: Pathogen growth likely if storage temperatures not maintained at level sufficient to preclude their growth	Storage Freezer Temperature Log	B: No, subsequent heating & chilling steps will better control biological hazards

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
			C: No P: No			

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Storage of Refrigerated Ingredients (Yogurt & B-Berry)	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: Pathogens (Salmonella, Listeria monocytogenes) C: None P: None	B: No - (temp.during storage is a CP at this point: handled by a pre-requisite program) C: No P: No	B: Pathogen growth likely if storage temperatures not maintained at level sufficient to preclude their growth	Storage Cooler Temperature Log	B: No, subsequent heating & chilling steps will better control biological hazards
Storage of Dry Ingredients (Granola)	B: None C: None P: Pests such as insects and rodents	B: None C: None P: pests	B: No C: No P: No	P: No history of pest control findings in manufacturing areas	P: Pest control program in place	No
Storage Packaging materials	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	GMP's, Inventory program in place		No
Batch/Weigh Frozen Ingredients (Blueberries)	B: Pathogens (Salmonella) C: None P: None	B: Pathogens (Salmonella) C: None P: None	B: No C: No P: No	B: Prolonged ambient temperatures may allow pathogens to proliferate to unacceptable levels P: No history of foreign material found in this product	B: Limited time during production and Subsequent cooking step will eliminate this hazard Recipe/Formulation Sheet tracks	B: No, Final best pathogen control at the cooking step

					batch numbers for traceability purposes	
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Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Batch/Weigh Refrigerated Ingredients (Yogurt & B-Berry)	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	B: Prolonged ambient temperatures may allow pathogens to proliferate to unacceptable levels P: No history of foreign material found in this product	B: Limited time during production and Subsequent cooking step will eliminate this hazard Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	No
Batch/Weigh Dry Ingredients (Granola)	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	GMPs followed	Recipe/ Formulation Sheet tracks batch numbers for traceability purposes	No
Cooking Blueberries & B-Berry Filling - Kettles	B: None C: None P: None	B: Pathogens - Listeria monocytogenes, E.coli 157:H7, Salmonella, Staph.aureus C: None P: None	B: Yes C: No P: No	B: potential survival and/or growth of pathogens if not properly cooked	B: Cook filling using validated time/temperature controls (temp. of filling reaches $\geq 165^{\circ}$ F) Product Cooked Temperature Log	Yes, CCP1B
Chilling Filling	B: None C: None P: None	B: None C: None P: None	B: No C: No P: No	B: Prolonged ambient temperatures may allow pathogens to proliferate to unacceptable levels	Chill product to $\leq 40^{\circ}$ F for quality purposes	No
Assemble/ Combine Yogurt, Blueberries, B-berry & Granola	B: None C: Allergen – Egg, Milk & Soy P: None	B: None C: Allergen – Egg, Milk & Soy P: None	B: No C: Yes P: No	C: Allergens can cause illness or death if eaten by unaware consumer	GMPs followed	C: No, Final best Allergen control at the labeling step

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Portioning / Fill Package Cups	B: Pathogens (Listeria monocytogenes) C: None P: None	B: Pathogens (Listeria monocytogenes) C: None P: None	B: No C: No P: No	Facility conducts environmental monitoring; no history of <i>L.mono</i> on production equipment or in process room	Environmental monitoring record	No
Seal Package Cups	B: None C: None P: None	B: None C: None P: None	No	Visual Quality check: each cup sealed	Leakers are noted on QA Inspection Log/ Rework Log	No
Coding / Labeling of Finished Product	B: None C: Allergen – Egg, Milk & Soy P: None	B: None C: Allergen – Egg, Milk & Soy P: None	C: Yes	C: Egg, Milk & Soy have been known to cause allergic reaction in some individuals	C: Allergen statement on label declaring Egg, Milk & Soy Label CCP Log	C: Yes, CCP2C
Case-pack packaged cups of finished product	B: None C: None P: None	B: None C: None P: None	No	Product is sealed in container at this point, and being handled in a sanitary manner	Packing room is maintained at a temp less than 50° F	No
Cases of finished product refrigerated in Blast Cooler	B: None C: None P: None	B: Pathogen – (Listeria monocytogenes) C: None P: None	No	Product refrigerated for Quality purposes, and to ensure that if present (unlikely), Listeria monocytogenes is controlled	Cooler log	No
QA inspection	B: None C: None P: None	B: None C: None P: None	No	Quality check at this step, and verification of risk-based controls being in-place	QA Log	No

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

List every ingredient, followed by every step in the process.	Potential hazards introduced or enhanced for this ingredient or step	Potential hazards controlled at this ingredient or step	Does this potential hazard need to be addressed as a CCP ANYWHERE in the HACCP plan (not just this step).	Justification for Yes or No answer. Use the severity and likelihood diagram to justify your answer	What control measures can be applied to prevent, eliminate or reduce hazards anywhere in the HACCP plan Documentation needed?	Is this step a critical control point? If "yes" assign a number and indicate B, C or P
Rework	B: Pathogens – (Listeria monocytogenes) C: None P: None	B: Pathogens – (Listeria monocytogenes) C: None P: None	No	Rework only during same day. All cooked Blueberries & B-berry filling not packaged is discarded at end of shift so pathogens do not have time to proliferate to unacceptable levels	QA Log	No
Cases palletized, moved into finished product Cooler	B: None C: None P: None	B: None C: None P: None	No	For Quality purposes, Product temp. is maintained at ≤35° F	Storage Cooler Temperature Log	No
Storage of finished product in Refrigerator	B: None C: None P: None	B: Pathogens - (Listeria monocytogenes) C: None P: None	B: Yes (elevated temperature during storage could allow the potential growth of <i>Listeria</i>)	B: Pathogen <i>Listeria monocytogenes</i> growth is potentially possible if product storage temperature is not maintained	Cold Storage Temperature Log	Yes, CCP3B
Pre-shipment Review	B: None C: None P: None	B: None C: None P: None	No	Verification step that all risk-based controls were observed and CCPs were documented before product is released for shipment	Pre-Shipment Review Log	No
Shipping to customers (frozen)	B: None C: None P: None	B: None C: None P: None	No	Company must create and keep customer records for Traceability/ Recall purposes	Packing / Shipping Log	No

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

Critical Limits, Monitoring, And Corrective Actions – CCP1

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 1 (B) Cooking Blueberries & B-Berry Filling	Filling having Salmonella or other pathogens due to insufficient heat treatment	Filling cooked to temperature of $\geq 165^{\circ}\text{F}$	Temperature of filling checked using calibrated thermometer	Thermometer inserted into kettle of filling prior to finish of the heating step	Once per each kettle of filling cooked	QA or designated personnel (will record on Cook Product Temperature Log)	If filling temperature found to be $\leq 165^{\circ}\text{F}$, it will be left in kettle and continue to be cooked until temp is measured to be $\geq 165^{\circ}\text{F}$
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Time and temperature in kettle will be adjusted to ensure that temperature of the product reaches $\geq 165^{\circ}\text{F}$ before that cook cycle is completed.] CCP will be under control after corrective action (CA) has been taken [Filling temperature will be measured to meet or exceed 165°F before it is removed from the kettle or continued in the production process.] Measures to prevent re-occurrence have been taken N/A No deviating product enters commerce [Designated personnel will verify filling cook temperatures prior to signing the Pre-shipment review to allow any finished product to leave the facility.] 						

Verification and Record Keeping – CCP2

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 1 (B) Cooking Blueberries & B-Berry Filling	Designated person performs Direct Observation of person checking the temperature of cooked Filling, once each production day.	Cooked Product Temperature Log	QA Reviews Consumer complaint file for reports of illness due to Salmonella or other pathogens	Record of results (annual report) from Consumer Complaint File Review
	Production Mgr or designated personnel checks the Product Cook Temperature Log to ensure that each kettle was measured at $>165^{\circ}\text{F}$.	Cooked Product Temperature Log	Samples of finished product will be tested for Salmonella on a monthly basis	Micro Lab testing reports
	QA or designated personnel calibrate thermometers prior to use per each day of production	Thermometer Calibration Log		
	Production Manager or designated personnel checks the Corrective Action Log to ensure it was completed, if a deviation occurred	Corrective Action Log		
	QA or designated personnel check for CCP1 monitoring & verification before product is shipped	Pre-shipment Records Review will be marked on the Cooked Product Temperature Log		

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

Critical Limits, Monitoring, And Corrective Actions – CCP2

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 2 (C) Label on product	Consumer with allergy eating product because of finished product pkg not having a label to declare presence of allergen	Label on each package of finished product declaring correct allergen statement	Each package checked for presence of label declaring correct allergen statement	Visual inspection	Each unit that is packed	Packing line personnel (will initial Packing Log to indicate monitoring was done)	Un-labeled package will have a label applied. No un-labeled pkg will be released for shipment.
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Cause will be investigated and label machine adjusted by maintenance as needed] CCP will be under control after corrective action (CA) has been taken [Finished units will not be placed into cases until correct label has been applied.] Measures to prevent re-occurrence have been taken [Equipment failure will be addressed by maintenance, labels examined for good adhesion; vendor contacted if failure is found to be due to labels.] No deviating product enters commerce [Designated personnel will verify that all units are labeled per random check of shipping cases before the Pre-shipment review is signed to allow any product to leave the facility.] 						

Verification and Record Keeping – CCP2

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 2 (C) Label on product	Spot-check (by Designated personnel) of 3 cases per each batch to determine that they contain label with correct allergen statement	Initials on Finished Product Inventory Log indicating Label Verification was performed	Review of Consumer complaint file for reports of un-labeled package or of illness due to un-declared allergen (conducted by QA)	Record of results (annual report) from Consumer Complaint File Review
	Designated personnel perform Direct Observation of the person checking the cases for allergen labels once each production day.	Initials on Finished Product Inventory Log indicating Direct Observation was performed		
	Check for CCP1 monitoring & verification before product is shipped	Pre-shipment Records Review marked on Finished Product Inventory Log		

Draft HACCP plan for FSMIP Yogurt & Blueberry Parfait

Critical Limits, Monitoring, And Corrective Actions – CCP3

Critical Control Point	Specific Hazard to be addressed	Critical limits for each control measure	Monitoring Procedures				Corrective Action
			What	How	Frequency	Who	
CCP 2 (B) Refrigerated Storage of Finished Product	Growth of <i>Listeria monocytogenes</i> due to temperature abuse during long-term cold storage	Product stored Refrigerated at 34° F - 45° F prior to use	Storage Cooler checked for temperature ≤45° F	Temperature recording system	Continuous monitoring (Alarm notifies monitoring company and designated personnel will be called to inform if freezer temp. goes high or if recorder is not functioning.)	QA personnel (will print record of storage cooler temperature and record on Storage Refrigerator Temperature Log)	If refrigerator temp exceeds 50° F for ≥0.5 hr, product will be checked to ensure that it is still within stated temperature range of 34° F - 45° F. If refrigerator is not able to hold temperature ≤45° F, product will be moved to a functional refrigerator.
Corrective actions	<ol style="list-style-type: none"> Identify & eliminate the cause of the deviation [Cause will be investigated and repairs to refrigerator will be completed before it goes back into use.] CCP will be under control after corrective action (CA) has been taken [Product found to be thawed (but still remaining ≤40° F) will be labeled for immediate use, with warning "do not re-freeze" and a use-by date of no more than 2 weeks applied. Measures to prevent re-occurrence have been taken [If Refrigerator fails to maintain temperature multiple times it will be removed from service and replaced with a more reliable unit.] No deviating product enters commerce [Only product that remains refrigerated at ≤45° F will be shipped to customers with normal labeling. Designated personnel will verify finished product storage temperatures before the Pre-shipment review is signed to allow any finished product to leave the facility.] 						

Verification and Record Keeping – CCP3

Critical Control Point	Verification		Validation	
	Activities	Documentation	Activities	Documentation
CCP 3 (B) Refrigerated Storage of Finished Product	*Direct Observation of QA personnel checking the temperature of Storage Refrigerator is not required because we have continuous monitoring equipment in operation.	Storage Cooler Temperature Log	QA Reviews Consumer complaint file for reports of illness due to <i>Listeria</i>	Record of results (annual report) from Consumer Complaint File Review
	Production Mgr or designated personnel checks the Storage Refrigerator Temp Log to ensure that all finished product was stored at <45° F.	Storage Cooler Temperature Log	Samples of finished product will be tested for <i>Listeria</i> on a monthly basis	Micro Lab testing reports
	Production Manager or designated personnel checks the Corrective Action Log to ensure it was completed, if a deviation occurred	Corrective Action Log		
	QA or designated personnel check for CCP3 monitoring & verification before product is shipped	Pre-shipment Records Review marked on Storage Refrigerator Log		
	QA or designated personnel open 3 cases to verify product is frozen solid before loading for shipment	Pre-shipment Review		

PRODUCT DEVELOPMENT

Product development for the following concepts was conducted. The focus was on using as much local produce as possible or making use of local processors who were already using local produce. The following information identifies the ingredient costs as well as the packaging and labor, where applicable.

Eggplant Rollatini with Very Veggie Sauce				
Ingredient	Wt/batch	%	Cost per Lb	Cost per Serving
Spinach, ch frz	322	12.45	0.34	0.011
Collard Greens ch	222	8.59	0.16	0.005
Kale	284	10.98	0.15	0.009
Fennel	104	4.02	9.00	0.001
Olive Oil	27.8	1.08	1.32	0.000
Ricotta Cheese*	1362	52.67	3.33	0.198
Whole Eggs	200	7.73	3.28	0.004
Bread Crumbs	52	2.01	3.75	0.000
Garlic, Fresh	6	0.23	1.80	0.000
Oregano, Gr	3	0.12	2.78	0.000
Thyme, dr	3	0.12	4.50	0.000
	2585.80	100.00		\$0.228
Ingredient Costs per serving - 60 gram filling				\$0.228
Eggplant Round - 70 gram				\$0.23
Very Veggie Sauce - 60 Grams**				\$0.03
* Possible Commodity Item				
** Includes labor and Packaging				
	Cost per serving without labor			\$0.715
Did not make enough to establish a labor price.				
Labor for this item will be high due to the fact the already prepared frozen eggplant rounds need to be thawed, filled and rolled.				

EGGPLANT ROLLATINI WITH VERY VEGGIE SAUCE

Nutrition Facts	
Serving Size (160g)	
Servings Per Container	
Amount Per Serving	
Calories 200	Calories from Fat 90
% Daily Value*	
Total Fat 10g	15%
Saturated Fat 2.5g	13%
Trans Fat 0g	
Cholesterol 25mg	8%
Sodium 460mg	19%
Total Carbohydrate 22g	7%
Dietary Fiber 3g	12%
Sugars 4g	
Protein 7g	
Vitamin A 60%	• Vitamin C 25%
Calcium 15%	• Iron 10%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

VERY VEGGIE SAUCE

Ingredient	Wt/batch	%	Cost per Lb	Cost per batch
Crushed Tomatoes	102.63	61.73	\$0.56	57.164
Green Bell	4.00	2.40	\$0.93	3.715
Red Bell	3.55	2.14	\$1.93	6.843
Onion	18.34	11.03	\$0.32	5.778
Garlic	0.65	0.39	\$1.80	1.162
Fennel	6.00	3.61	\$2.10	12.600
Zucchini	9.15	5.50	\$0.64	5.853
Yellow Squash	9.15	5.50	\$0.64	5.853
Olive Oil	2.98	1.79	\$2.94	8.755
Peach Cider	8.04	4.84	\$1.62	13.026
Salt	0.06	0.04	\$0.05	0.003
Pepper	0.13	0.08	\$3.44	0.447
Italian Spices	0.05	0.03	\$0.71	0.036
Parsley	0.99	0.59	\$0.72	0.710
Basil	0.56	0.34	\$2.00	1.122
	166.26	100.00		\$123.069
Cost Per Pound				\$0.74
Cost Per Serving (2 ounces)				\$0.09
Bulk packaging per serving – 5 gallon bucket				\$0.02
Labor per serving				\$0.163
	Cost per serving with labor & packaging			\$0.275

RICOTTA FILLING

Nutrition Facts

Serving Size (57g)
Servings Per Container

Amount Per Serving

Calories 70 **Calories from Fat** 30

% Daily Value*

Total Fat 3.5g **5%**

Saturated Fat 1.5g **8%**

Trans Fat 0g

Cholesterol 25mg **8%**

Sodium 75mg **3%**

Total Carbohydrate 4g **1%**

Dietary Fiber 1g **4%**

Sugars 0g

Protein 5g

Vitamin A 50% • **Vitamin C** 15%

Calcium 10% • **Iron** 4%

*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories:	2,000	2,500
Total Fat	Less than		65g	80g
Saturated Fat	Less than		20g	25g
Cholesterol	Less than		300mg	300mg
Sodium	Less than		2,400mg	2,400mg
Total Carbohydrate			300g	375g
Dietary Fiber			25g	30g

Calories per gram:

Fat 9 • Carbohydrate 4 • Protein 4

Eggplant Pizza - Two Slices

Ingredient	Wt/batch	%	Cost per Lb	Cost per Serving
Eggplant cutlets	140	54.54	\$1.50	0.463
Very Veggie Sauce*	60	23.37	\$2.20	0.291
Mozzarella, part skim, shredded**	56.7	22.09	\$2.15	0.269
Total	256.70	100.00		\$1.022
*Includes labor & packaging				
**May be commodity item				
		Cost per Serving		\$1.022
This product is assembled at the food service site.				
Packaging is the bulk for the eggplant cutlets. The Veggie Sauce is in 5 gallon buckets. The shredded cheese comes in 5 lb pouches in 30 lb boxes.				

EGGPLANT PIZZA

Nutrition Facts	
Serving Size (125g)	
Servings Per Container	
Amount Per Serving	
Calories 230	Calories from Fat 110
% Daily Value*	
Total Fat 13g	20%
Saturated Fat 4.5g	23%
Trans Fat 0g	
Cholesterol 15mg	5%
Sodium 560mg	23%
Total Carbohydrate 20g	7%
Dietary Fiber 2g	8%
Sugars 3g	
Protein 10g	
Vitamin A 15%	• Vitamin C 6%
Calcium 25%	• Iron 4%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Yogurt Granola Cup/ Meal Portion

Ingredient	Wt/batch	%	Cost per Lb	Cost per Serving
Vanilla Yogurt*	170.1	51.06	\$1.02	0.382
Granola, Toasted	28.4	8.51	\$2.69	0.168
Blueberries, frozen	113.4	34.04	\$1.71	0.427
Bberry mix	21.3	6.38	\$2.54	0.119
	333.11	100.00		\$1.096
Labor per serving				\$0.75
Packaging Costs (Lid and Cup)				\$0.15
* Possible Commodity Item				
		Cost per Serving		\$1.996

YOGURT GRANOLA CUP/ MEAL PORTION

Nutrition Facts	
Serving Size (335g)	
Servings Per Container	
Amount Per Serving	
Calories 360	Calories from Fat 60
% Daily Value*	
Total Fat 7g	11%
Saturated Fat 2g	10%
Trans Fat 0g	
Cholesterol 15mg	5%
Sodium 150mg	6%
Total Carbohydrate 67g	22%
Dietary Fiber 5g	20%
Sugars 58g	
Protein 12g	
Vitamin A 2%	• Vitamin C 8%
Calcium 30%	• Iron 8%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Pollo Loco - Fajita Filling				
Marinade Ingredient	Wt/batch	%	Cost per Lb	Cost per Batch
Scallions	60	36.36	\$2.50	\$0.330
Garlic	18	10.91	\$1.80	\$0.071
Cilantro	5	3.03	\$12.00	\$0.132
Lime Juice	58	35.15	\$0.32	\$0.041
Olive Oil	14	8.48	\$2.94	\$0.091
Ancho Pepper	10	6.06	\$18.00	\$0.396
	165.0	100.00		\$1.062
Batch marinade to 2 lbs chicken				
FINAL SERVING	Raw weight			
Chicken*	3 Ounces	54.55	\$2.68	\$0.503
Pepper/Onion mix	4 ounces	36.36	\$1.40	\$0.350
Marinade	0.5 ounces	9.09	\$0.15	\$0.014
	5.5	100.00		
* Commodity Item				
		Cost per Serving		\$0.866

POLLO LOCO – FAJITA FILLING

Nutrition Facts	
Serving Size (113g)	
Servings Per Container	
Amount Per Serving	
Calories 130	Calories from Fat 60
% Daily Value*	
Total Fat 6g	9%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 40mg	13%
Sodium 390mg	16%
Total Carbohydrate 6g	2%
Dietary Fiber 2g	8%
Sugars 1g	
Protein 14g	
Vitamin A 10% • Vitamin C 45%	
Calcium 2% • Iron 4%	
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:	
	Calories: 2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9 • Carbohydrate 4 • Protein 4	

Chicken Fajitas w/o Wrap

1. How does the food look?

Actions | ▼

BAD		6	14%
OKAY		12	28%
GREAT		25	58%
Total		43	100%

2. How does the food taste?

Actions | ▼

BAD		0	0%
OKAY		18	42%
GREAT		25	58%
Total		43	100%

3. How does the food feel when you bite or chew it?

Actions | ▼

BAD		1	2%
OKAY		16	37%
GREAT		26	60%
Total		43	100%

4. How does the food smell?

Actions | ▼

BAD		1	2%
OKAY		11	26%
GREAT		31	72%
Total		43	100%

5. Are you a...

Actions | ▼

BOY		18	45%
GIRL		22	55%
Total		40	100%

Eggplant Rollatini

1. How does the food look?

Actions | ▼

BAD		4	9%
OKAY		16	37%
GREAT		23	53%
Total		43	100%

2. How does the food taste?

Actions | ▼

BAD		1	2%
OKAY		22	51%
GREAT		20	47%
Total		43	100%

3. How does the food feel when you bite or chew it?

Actions | ▼

BAD		5	12%
OKAY		19	44%
GREAT		19	44%
Total		43	100%

4. How does the food smell?

Actions | ▼

BAD		1	2%
OKAY		21	49%
GREAT		21	49%
Total		43	100%

5. Are you a...

Actions | ▼

BOY		20	49%
GIRL		21	51%
Total		41	100%

Pasta with Sauce

1. How does the food look?

Actions | ▾

BAD		4	9%
OKAY		14	33%
GREAT		25	58%
Total		43	100%

2. How does the food taste?

Actions | ▾

BAD		3	7%
OKAY		17	40%
GREAT		23	53%
Total		43	100%

3. How does the food feel when you bite or chew it?

Actions | ▾

BAD		3	7%
OKAY		12	28%
GREAT		28	65%
Total		43	100%

4. How does the food smell?

Actions | ▾

BAD		3	7%
OKAY		15	35%
GREAT		25	58%
Total		43	100%

5. Are you a...

Actions | ▾

BOY		20	51%
GIRL		19	49%
Total		39	100%

Yogurt with Blueberry

1. How does the food look?

Actions | ▾

BAD		5	9%
OKAY		22	40%
GREAT		28	51%
Total		55	100%

2. How does the food taste?

Actions | ▾

BAD		8	15%
OKAY		30	55%
GREAT		17	31%
Total		55	100%

3. How does the food feel when you bite or chew it?

Actions | ▾

BAD		4	7%
OKAY		32	58%
GREAT		19	35%
Total		55	100%

4. How does the food smell?

Actions | ▾

BAD		1	2%
OKAY		22	40%
GREAT		32	58%
Total		55	100%

5. Are you a...

Actions | ▾

BOY		22	46%
GIRL		26	54%
Total		48	100%

Eggplant Parm

1. How does the food look?

Actions | ▼

BAD		0	0%
OKAY		17	31%
GREAT		37	69%
Total		54	100%

2. How does the food taste?

Actions | ▼

BAD		4	7%
OKAY		13	24%
GREAT		37	69%
Total		54	100%

3. How does the food feel when you bite or chew it?

Actions | ▼

BAD		5	9%
OKAY		15	28%
GREAT		34	63%
Total		54	100%

4. How does the food smell?

Actions | ▼

BAD		0	0%
OKAY		14	26%
GREAT		40	74%
Total		54	100%

5. Are you a...

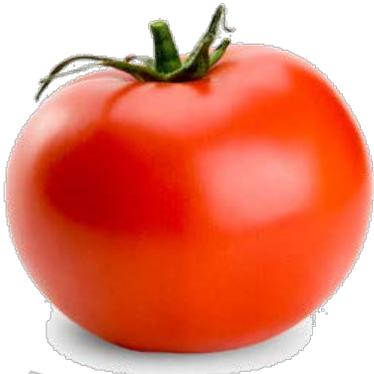
Actions | ▼

BOY		23	44%
GIRL		29	56%
Total		52	100%

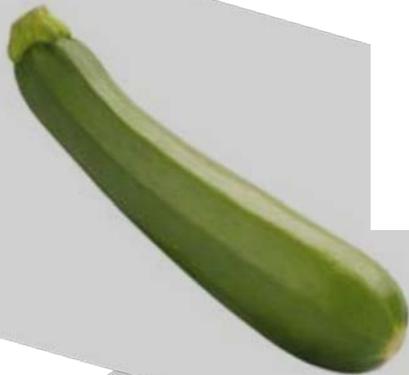
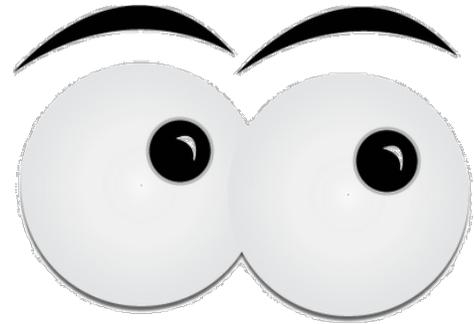


Jersey Fresh School Meals: Smooth 'n' Sassy Pasta Sauce

This pasta sauce is not only **tasty** but made
with **veggies** that are **good** for you too!



Tomatoes are
good for your



Zucchini keeps
you healthy!



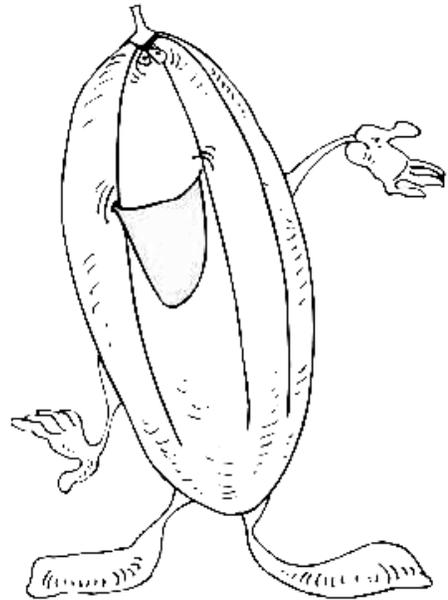
Yellow Squash
keeps you
moving!



Help your new veggie pals get their color back!



Color Zachary the Zucchini
Green!



Color Yoko the Yellow Squash
Yellow!



Color Timmy the Tomato **Red!**



Jersey Fresh School Meals: Smooth 'n' Sassy Pasta Sauce

This special sauce served over pasta in your school lunch is a **value added product** and is made from **local agriculture**. It's tasty and jam-packed with tons of nutrients to keep your body in tip-top shape.

Value Added Product: any agricultural product that has added value due to some processing

Local Agriculture: the vegetables are from New Jersey farms!

What's really in the Pasta Sauce and just what exactly it is doing for Your Body!

Tomatoes

-great source of lycopene (this nutrient is important for healthy eyes!)



Zucchini

-packed with Vitamin C (helps keep you from getting sick!)



Yellow Squash

-rich source of potassium (gives your muscles the energy you need to play!)



Fennel

-helps your body digest your lunch!



Red and Green Peppers

-also full of Vitamin C



Onions

-good for your heart

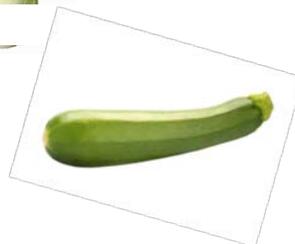


Saucy Search



L N A S L P V N A O E Y I P P
 U E T O A H A A F E T N P S E
 C E C J L U U U L R E H E Y N
 E A L E R C C G A U S N E R Z
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Digestion
 Energy
 Fennel
 Green
 Pepper
 Heart
 Jersey
 Fresh
 Local
 Lunch
 Lycopene
 Muscles
 Red
 Pepper
 Sauce
 Tasty
 Tomato
 Value
 Veggies
 Vitamin C
 Yellow
 Squash
 Zucchini



Jersey Fresh School Meals: Smooth 'n' Sassy Pasta Sauce

What can make a pasta and sauce lunch better? A sauce that is not only finger licking good but good for you too! This new lunch option in your cafeteria is a healthier alternative to your same-old, tired tomato sauce.



- It is made from **local agriculture**, so the *ingredients come from local New Jersey Farms*.
-local foods reduce **food miles** (the distance food is transported from the time of its production until it reaches the consumer)—Buy local has a positive impact on the environment as well as local agriculture
- It is also a **value added product**, which means the raw components were processed to add value.

Why is this sauce is a step above the rest?

Tomatoes: packed with lycopene (lycopene is great for your eyes and may protect against certain cancers)

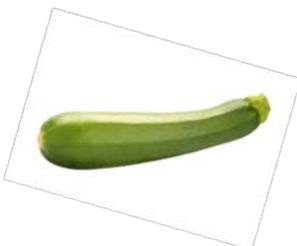
Zucchini: great source of Vitamin C (helps boost your immune system)

Fennel: contains essential oils that aid in digestion

Yellow Squash: rich source of potassium which will give your muscles tons of energy to compete in after-school sports at your full potential

Red and Green Bell Peppers: also full of Vitamin C

Onions: great source of antioxidants (helps defend against cancers)



Try making this recipe at home!

This recipe incorporate some of the vegetables used in the pasta sauce but in a fun new way—after all, who doesn't like lasagna?

Veggie Lasagna

2 or 3 zucchini, peeled and sliced into rings on the diagonal

1 lg. onion, sliced thin

3 lg. tomatoes, sliced

1 tsp. salt

A little pepper

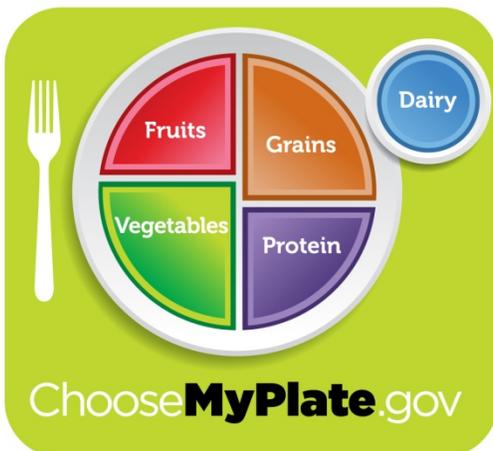
2 tsp. basil

3/4 c. grated Parmesan cheese

Butter

Rub a shallow casserole dish with butter. Line dish with layer of zucchini, the onions and tomato. Top with 1/2 teaspoon salt, dash of pepper, 1 teaspoon basil, and 2 tablespoons cheese. Dot with butter and repeat layering again. Bake at 375 degrees for 45 minutes. Makes 6 to 8 servings.

USDA's MyPlate: A Visual Guide For Healthier Eating



This icon is a new tool to help Americans make smarter eating choices.

Recommendations include:

- Enjoy your food but eat less.
- Make half your plate fruits and vegetables
- Make half of your grains whole.
- Switch to low fat or fat free dairy

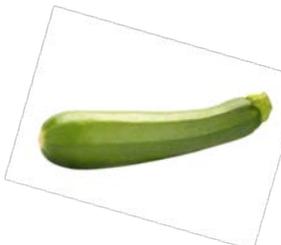
Jersey Fresh School Meals: Smooth 'n' Sassy Pasta Sauce

History of this Product:

The New Jersey Department of Agriculture has teamed up with the Rutgers Food Innovation Center and New Jersey agricultural producers to bring to your school **value added** products made from local agriculture that meet the nutritional and cost requirements of the National School Lunch Program, and that fit the student taste preference. Value added products simply means that that “Smooth ‘n’ Sassy Pasta Sauce” has raw ingredients that went through some processing to add value to them. The **local** agriculture aspect is that most of the vegetables are from local New Jersey farms. Buying local food cuts down on food miles (the distance food is transported from the time of its production until it reaches the consumer)—Buying local has a positive impact on the environment as well as local agriculture.

Nutrient Information:

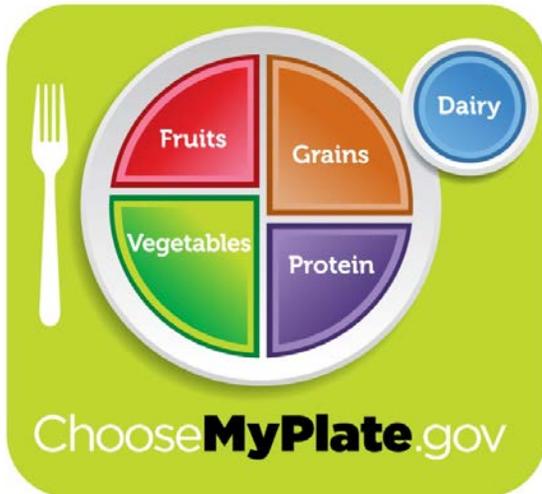
- Tomatoes:** packed with lycopene (lycopene is great for eyes and may protect against certain cancers)
- Zucchini:** great source of Vitamin C (helps boost immune system—so they won't miss school!)
- Fennel:** contains essential oils that aid in digestion
- Yellow Squash:** rich source of potassium which will give muscles tons of energy to compete in after-school sports at their fullest potential
- Red and Green Bell Peppers:** also full of Vitamin C
- Onions:** great source of antioxidants (helps defend against cancers)



USDA's MyPlate: A Visual Guide For Healthier Eating

These lunch options were also introduced in part due to the childhood obesity epidemic. These meals adhere to the USDA guidelines for the National School Lunch Program. They also model the new recommendations of USDA's MyPlate.

This icon is a new tool to help Americans make smarter eating choices.



Recommendations include:

Enjoy your food but eat less.

Make half your plate fruits and

Make half of your grains whole.

Switch to low fat or fat free dairy.

These are simple, easy to follow directions to help the American population consume healthier meals without much thought.

Incorporating "Smooth 'n' Sassy Sauce" Into Your Curriculum

The students will be more accepting of this new product if it is introduced in a variety of ways across the curriculum. These are a few suggestions for incorporating into the school day:

- *Integrate "Smooth 'n' Sassy Sauce" into your geography or history lessons about Italy.*
- *Include "Smooth 'n' Sassy Sauce" in your culture fair*
- *Learn about farming and agriculture with "Smooth 'n' Sassy Sauce" local ingredients*

More Resources:

Healthier US School Challenge, Recipes, Food Service Resources, and Child Care Resources

<http://healthymeals.nal.usda.gov>

School Food Service Resources

<http://www.healthyschoollunches.org/resources/schools.cfm>

School Lunch reform Efforts

<http://www.schoollunchinitiative.org/resources/>

Jersey Fresh Initiative

<http://www.jerseyfresh.nj.gov/>



*From Farms to Schools:
Developing Value-Added Agricultural
Products for the School Lunch Program*

Diane Holtaway & Julie Elmer

*It Takes a Village:
Collaboration in Good Food and School Gardens*

February 24, 2012

Collaborating Partners

- New Jersey Department of Agriculture
 - Economic Development
 - Division of Food and Nutrition
- NJAES
 - Rutgers Food Innovation Center
 - RCE Dept. of Family and Community Health Sciences
- New Jersey Agricultural Producers



STATE OF NEW JERSEY
DEPARTMENT OF AGRICULTURE



Funded By:

USDA
Federal State Marketing
Improvement Program



Flaim Farm Brothers and
Chef Tony Geraci

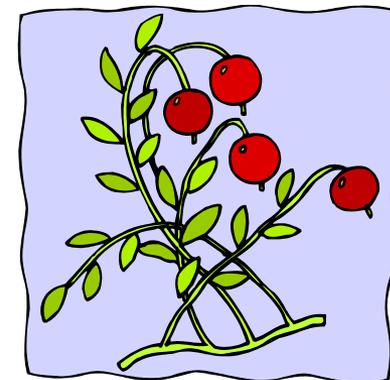
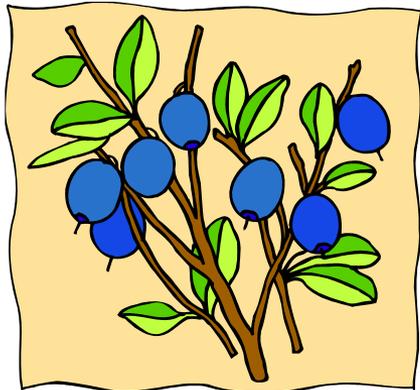
Background

- The number of overweight children in America has more than quadrupled since 1960. 1 in 3 kids are overweight or obese.
- Studies indicate that if this trend continues, today's children will be the first generation to live a shorter life than their parents.
- Obesity leads to debilitating health problems like Type 2 diabetes and heart disease.
- The Healthy, Hunger – Free Kids Act 2010
 - Increased reimbursements by \$.06/meal
 - Set improved common-sense nutrition standards
 - New policies to help schools send consistent messages about healthy eating– including vending machines, school stores, etc.



Background

- New Jersey Farmers are currently cultivating a variety of products that could be integrated into the NJ school lunch program.
- A challenge due to inconsistency between the growing season and the school calendar.
- Shipping and distribution logistics are also challenges.



Background

- Just to give you a sense of NJ agricultural production rankings among the 50 states....
 - 2nd in blueberry production (40.0 million pounds).
 - 3rd in bell pepper production (88.2 million pounds).
 - 3rd in cranberry production (48.0 million pounds).
 - 4th in head lettuce production (15.8 million pounds).
 - 5th in peach production (62.0 million pounds).
 - 6th in cucumber production (60.0 million pounds).
 - 7th in squash (summer and winter) production (31.4 million pounds)
 - 8th in tomato production (68.2 million pounds).



Goals and Objectives

1. Develop value-added agricultural products that reflect nutritional & cost requirements of the National School Lunch program
2. Evaluate the potential suitability of value-added produce items for vending machine distribution in schools
3. Conduct consumer research that demonstrates product sensory acceptance by school children of various age groups and preparation and distribution by School Food Service Directors

Goals and Objectives

4. Conduct analytical research that demonstrates acceptable product shelf life.
5. Identify New Jersey agricultural producer(s) who will supply and will market the value-added products for the program's products.
6. Identify processors who can commercialize and manufacture products for sale to the New Jersey school system.
7. Prepare and disseminate fact sheets to school food service directors; prepare and execute marketing plan .

Plan of Action

- Review of Literature: school food service trends
- Consumer Research:
 - School Food Service director focus groups
 - Sensory testing – Students - statewide
- Product Development: Concept development, prototype development, preliminary costing, packaging concepts, shelf life
- HACCP Plan Development:
 - Analysis of raw materials and finished products
 - Operational process based on HACCP
- Product Commercialization:
 - Identify agricultural producers and manufacturers
- Education and Marketing:
 - Educational fact sheets
 - Website development for NJDA and FIC websites



Deliverables

- Identification of 2 high potential value-added food products, that meet:
 - School food service nutritional guidelines
 - School food service packaging, storage and preparation needs
 - Acceptable cost parameters
 - Student taste preferences



Challenges

- Cost
- Distribution
- Shelf life requirements
- Student acceptance
- Cafeteria logistics
- Packaging specifications
- Commercialization – Scale-up
- Food Safety Hurdles



Eggplant Rollatine with Chunky Primavera Sauce

Flaim Farms eggplant slices rolled around a delicious blend of low-fat ricotta cheese and savory sautéed greens, topped with a sauce made with a harvest of Jersey Fresh vegetables and herbs ...tomatoes, zucchini, fennel and basil



Rotini with Smooth 'n' Sassy Garden Pasta Sauce

Whole grain pasta tossed with a very veggie tomato sauce secretly loaded with a bounty of farm fresh Jersey vegetables, including zucchini, onion, fennel and basil



Lasagna Roll-ups

Swirls of lasagna rolled around a creamy filling of low-fat ricotta cheese and sautéed Jersey Fresh greens, topped with a sauce made from a harvest of Jersey Fresh vegetables and herbs... tomatoes, zucchini, fennel and basil



Asian Chicken Stir-Fry

A taste of the Far East...juicy chunks of boneless chicken breasts marinated in a pungent blend of garlic, soy sauce, tamari, and Circle M Farms peach preserves and peach cider



El Pollo Loco

Zesty chunks of boneless chicken breasts and Flaim Farms fire-roasted sweet peppers, marinated in a flavorful combo of Circle M Farm peach salsa, crushed red pepper, onion and cilantro



Jersey Blues Whole Grain Muffins

Breakfast B Berry Parfait

A harvest of whole grains including whole wheat flour and oats, studded with Jersey Fresh sweet blueberries

Layered creamy low-fat yogurt and Limpert Brothers crimson cranberry/beet compote, topped off with Jersey blueberries and low-fat granola

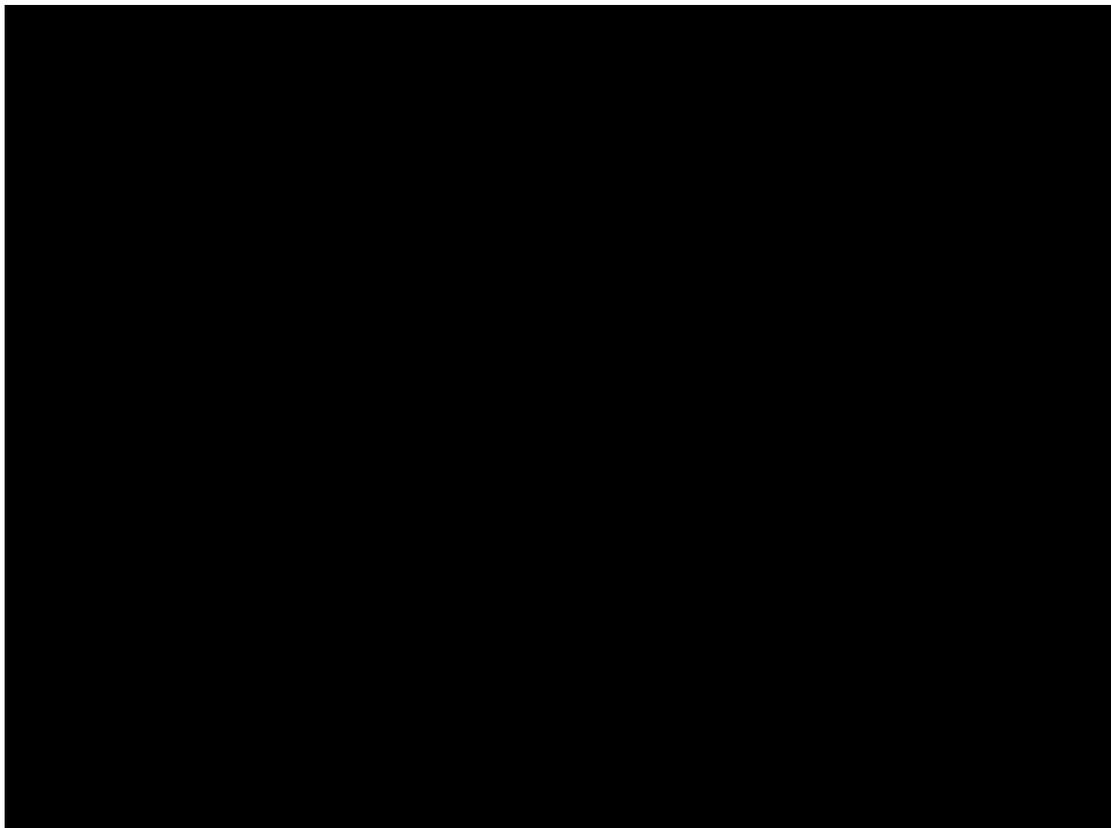


Tier 1 Finalists

- Breakfast BBerry Parfait
- Eggplant Rollatine with Chunky Primavera Sauce
- Eggplant Parmesan Pizzas
- El Pollo Loco
- Smooth 'n' Sassy Garden Pasta Sauce
- Whole Grain Blueberry Muffins



NJ Today – February 6, 2012



Results to Date:

Sensory Analysis

Nutrition Facts/ Components



Nutrition Facts	
Serving Size 1 container 8 oz 227g (227) Tj (g)	
Amount Per Serving	
Calories 238	Calories from Fat 28
% Daily Value*	
Total Fat 3g	5%
Saturated Fat 2g	10%
Trans Fat	
Cholesterol 14mg	5%
Sodium 148mg	6%
Total Carbohydrate 42g	14%
Dietary Fiber 0g	0%
Sugars	
Protein 11g	
Vitamin A 3%	Vitamin C 3%
Calcium 38%	Iron 1%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
©www.NutritionData.com	

Sensory Analysis

New Jersey Farms to Schools Student Evaluations

Sample Code: _____ Order #: _____

Circle the face or word that describes your answer.

How does the food look?



BAD



OKAY



GREAT

How does the food taste?



BAD



OKAY



GREAT

How does the food feel when you bite or chew it?



BAD



OKAY



GREAT

How does the food smell?



BAD



OKAY



GREAT

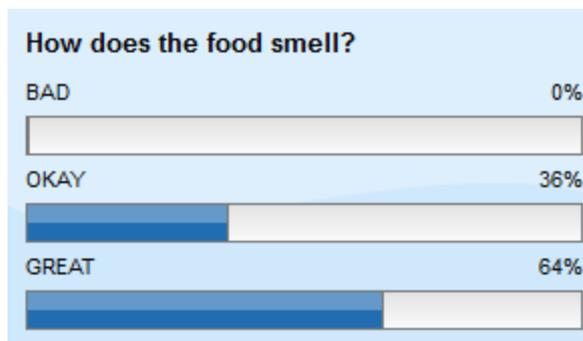
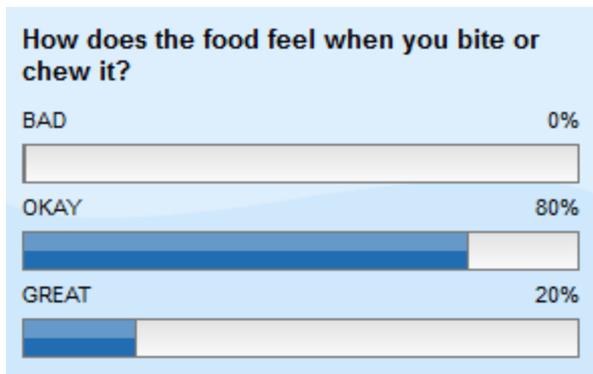
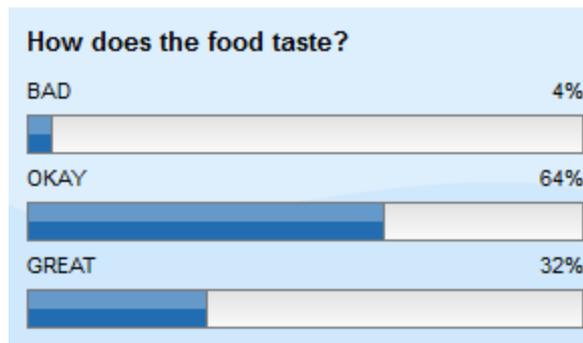
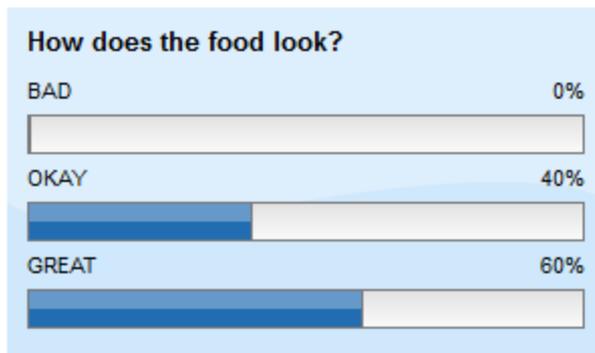
Are you a ... **BOY** **GIRL**

What grade in school are you in? 1 2 3 4 5 6 7 8
9 10 11 12

Results to Date:

25 students: high school Cumberland/Gloucester Counties

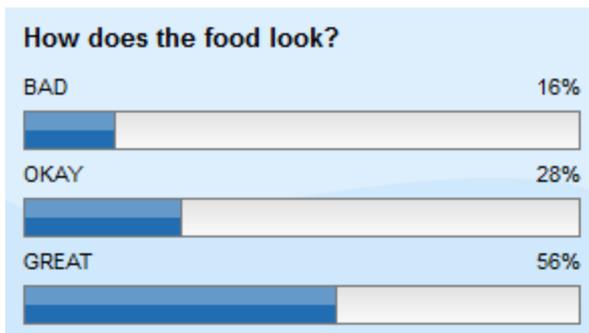
- Breakfast Bberry Parfait



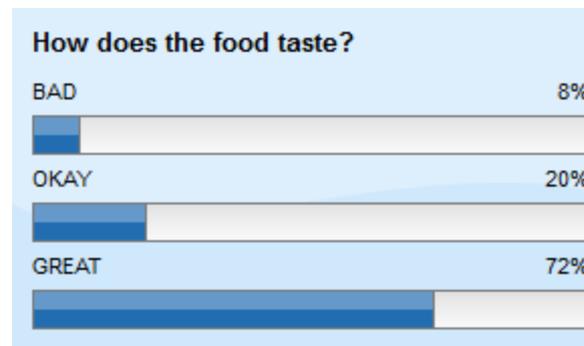
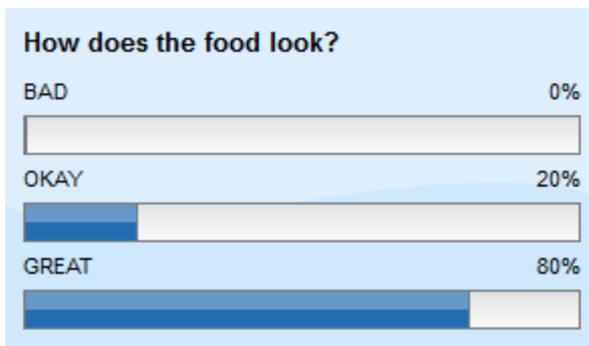
High Percentage of “Okay” scores likely driven by desire for crunchy granola

Results to Date:

- Eggplant Rollatine with Chunky Primavera Sauce

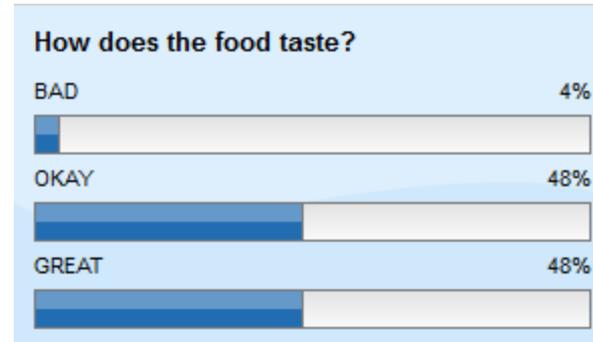
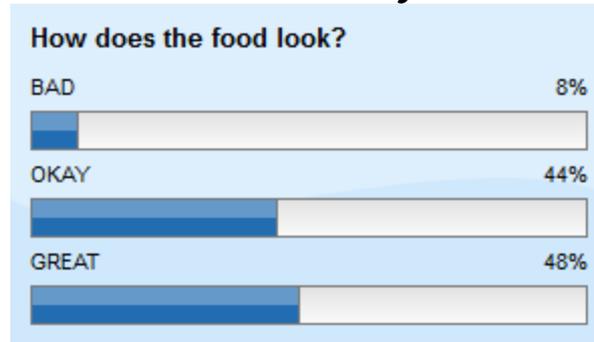


- Eggplant Parmesan Pizzas

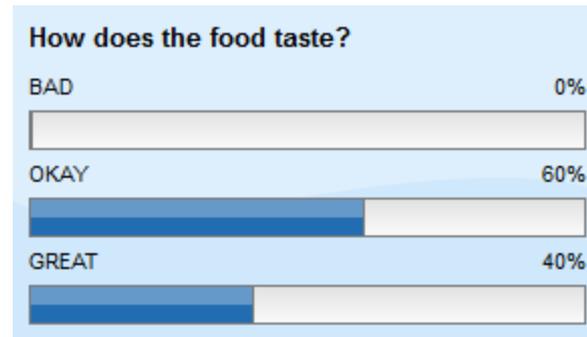
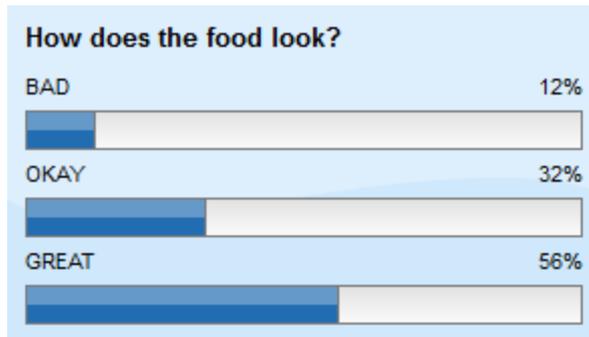


Results to Date:

- Smooth 'n' Sassy Garden Pasta Sauce



- El Pollo Loco



Nutrition Facts/Components

Breakfast Bberry Parfait

- Calories - 270
- Saturated fat – 1.5 g - 8%
- Sodium – 130 mg

- Fruit – 1/8 cup blueberries
- Meat/Meat Alt. – 1 oz.

Jersey Blues Whole Grain Muffins

- Calories - 110
- Saturated fat – 10%
- Sodium – 125 mg

- Grain – 1 serv. whole grain

Nutrition Facts/Components

Eggplant Rollatine with Chunky Primavera Sauce

- Calories - 200
- Saturated fat – 15%
- Sodium – 450 mg.

- Vegetable – 1 cup
- Meat/Meat Alt. – 1 oz. ricotta cheese

Eggplant Parmesan Pizza

- Calories - 220
- Saturated fat – 23%
- Sodium – 550 mg

- Vegetable – ¼ cup
- Meat/Meat Alt. – 1 oz. cheese

Nutrition Facts/Components

- **El Pollo Loco**
 - Calories - 120
 - Saturated fat – 5%
 - Sodium – 330 mg
 - Vegetable – ¼ cup
 - Meat/Meat Alt. – 2 oz. chicken
- **Whole Grain Pasta with Smooth 'n' Sassy Garden Pasta Sauce**
 - Calories - 230
 - Saturated fat – 0%
 - Sodium – 180 mg
 - Vegetable – ¼ cup
 - Grain – 1 serving whole grain

Work to Date:

- ✓ Research Review – through March 2011
- ✓ Food Service Director Focus Groups/Surveys – May 2011
- ✓ Concept/Product Development – June -August 2011
- ✓ Commercialization – October 2011- Present
- ✓ Student Sensory Evaluation – Jan. 2011 – March 2012



Next Steps:

- Apply for additional funding – March 2012
- Finalize Product formula & process – Feb. – April 2012
- Shelf Life, Nutrition Analysis and HACCP plan development – April 2012
- Test market – Implement food products in 2 test schools
 - *Funding through RWJ Foundation – New Jersey Partnership for Healthy Kids grant – City of Vineland – April, May 2012*
- Education and Marketing materials – April – June 2012



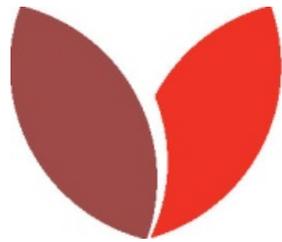
Opportunities for Agricultural Producers

If you looking for a new sales venue, please let us know!

- School food service directors are looking for healthy locally produced food products
- The Food Innovation Center is working to obtain additional grant funding, but producer interest is critical!
- Let the Food Innovation Center work with you to:
 - Determine the product concepts
 - Develop the products
 - Identify manufacturers and a feasible distribution system



***Contact Diane Holtaway:
856-459-1900 x. 4514***



FOOD INNOVATION CENTER

For more information about the project and the Food Innovation Center, please contact:

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