# Portfolio Annual Report 2008:
## Nutrition and Healthier Food Choices

**United States Department of Agriculture**
**Cooperative State Research, Education, and Extension Service**
**Office of Planning and Accountability**

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## Section I: Portfolio Overview

*Portfolio Planning*

**Portfolio Mission**
The mission of the Nutrition and Healthier Choices Portfolio is to develop the research base for guidance on diet and physical activity and to develop and carry out effective educational and environmental strategies to improve the Nation's health by providing leadership for strong research, education and extension.

**Portfolio Vision**
The vision is active, healthy Americans in healthy communities.

**Portfolio Introduction**
The Nutrition and Healthier Choices Portfolio supports CSREES' Strategic Goal 5 "Improve the Nation's Nutrition and Health". A majority of the actions of this portfolio fall under the CSREES emphasis area "Food, Nutrition and Health", one of the thirteen CSREES' targeted areas of emphasis. This portfolio also supports President Bush's initiative for a HealthierUS (http://www.healthierus.gov/). Two important objectives of the President's initiative are to improve the nutrition and physical activity of Americans. Food and physical activity choices made by individuals today have long-ranging health implications. Major causes of morbidity and mortality, including heart disease, type 2 diabetes, hypertension, osteoporosis, and certain cancers are related to poor dietary choices and sedentary lifestyles. Furthermore, poor diet and physical inactivity resulting in energy imbalances are the most important factors contributing to the increase in obesity which has reached epidemic proportions in the United States. USDA has a mandated, unique responsibility for the American food system. In the past, when food was scarcer, consumer demand was overshadowed by the limits of the food supply. Today, with a more abundant food supply and a clearer understanding of the relationship between food and health, consumer demand is the driving force of the American food system. However, the population is also struggling with increasing time pressure, new cultural influences, a changing food supply, and declining food related skills, making the need for science-based guidance on health and physical activity ever more important.

This document reports on activities carried out by the portfolio team in 2007. The portfolio includes four USDA/CSREES primary knowledge areas (KA): KA 701 - Nutrient Composition of Food, KA 702 – Requirements and Function of Nutrients and Other Food Components, KA 703 – Nutrition Education and Behavior, and KA 704 – Nutrition and Hunger in the Population. Part of the report includes responses to comments made by external review panelists who reviewed this portfolio in 2006. With the passage of the Federal Financial Accountability and Transparency Act of 2006 (FFATA) formula funds have been incorporated into a formula grants process. This change from formula funded programs to formula grant programs is reflected in the language of this portfolio beginning with the 2008 response.

**Portfolio's Linkage to CSREES Strategic Plan**

CSREES Supported Goal

This portfolio supports CSREES Strategic Goal 5, "Improve the Nation's Nutrition and Health." (Note: Prior to CSREES' Strategic Plan for FY2007-2012, the Strategic Goal "Improve the Nation's Nutrition and Health" was Strategic Goal 4.) CSREES supports research and analysis to improve the scientific knowledge base concerning nutrition and health. It also sponsors education and extension to promote healthy diets, reach children early, ensure access to healthy food, and utilize scientifically valid information to improve food, diet, and activity level decisions. Education programs strengthen the foundation for this goal by building capacity in the agricultural research and extension system and training the next generation of scientists and educators.

CSREES Supported Objective

This portfolio supports Strategic Objectives 5.1 "Ensure Access to Nutritious Food" and 5.2 "Promote Healthier Eating Habits and Lifestyles." To "Ensure Access to Nutritious Food," CSREES partners develop, test and release new technologies and innovative production practices to enhance the nutritional properties of foods, and increase accessibility to more healthy and nutritious food products for the entire population. Research helps verify new classes of food compounds that play a role in human health through optimal nutrition. Education of professionals and practitioners helps ensure that relevant, scientifically valid information and recommendations reach consumers. Extension helps consumers adopt proven and healthier practices through science-based education. To "Promote Healthier Eating Habits and Lifestyles," CSREES uses its low income nutrition education programs and broader nutrition education efforts as key opportunities to promote healthier eating and more physical activity across the Nation.

**CSREES Strategic Plan Key Long-Term Outcomes**

**Key Long-Term Outcome**: Reduced proportion of adult participants age 20 years and older who are obese, and of children and adolescents who are obese and overweight by increasing healthier food choices and lifestyles

**Performance Measure**: Development and use of effective intervention methods and strategies to change behavior and improve diet and physical activity in target populations.

**Performance Criteria**:

- Assess food intake and dietary patterns, factors that influence food intake and dietary patterns, their interrelationships, and food and nutrient intake in relation to nutrient requirements, dietary guidance and food plans
- Increase understanding of food insecurity, insufficiency and hunger in the population, and activities to reduce hunger

**Actionable Strategies:**

Promote the *2005 Dietary Guidelines for Americans*, use an evidence-based system to plan for and develop the *2010 Dietary Guidelines for Americas*, revise the Healthy Eating Index so that scores are based upon up-to-date nutrition guidelines, and re-engineer Federal nutrition guidance:

- Conduct research, education and extension on promoting healthy weights, and preventing overweight and obesity

Update Nutrition Assistance Programs based on the new *Dietary Guidelines*:

- Update nutrition curricula for children and youth

Leverage nutrition assistance to promote healthful lifestyles and healthy weight:

- Promote increased intake of fruits, vegetables, whole grains, and low-fat dairy products
- Develop and expand cross-program nutrition promotion and education efforts, including developing common messaging
- Work with State partners to integrate nutrition and physical activity promotion within and across programs

Support the recruitment, retention, training, graduation, and placement of the next generation of research scientists, educators, and practitioners in the food and agricultural sciences

Sponsor research, education and extension involving the community to increase better lifestyles decision making and selection of healthy, nutritious affordable foods

Sponsor research, education and extension on food assistance policy, health promotion, and community dimensions of nutrition and food security

Improve the quality and quantity of data to assess dietary and nutritional status and physical fitness

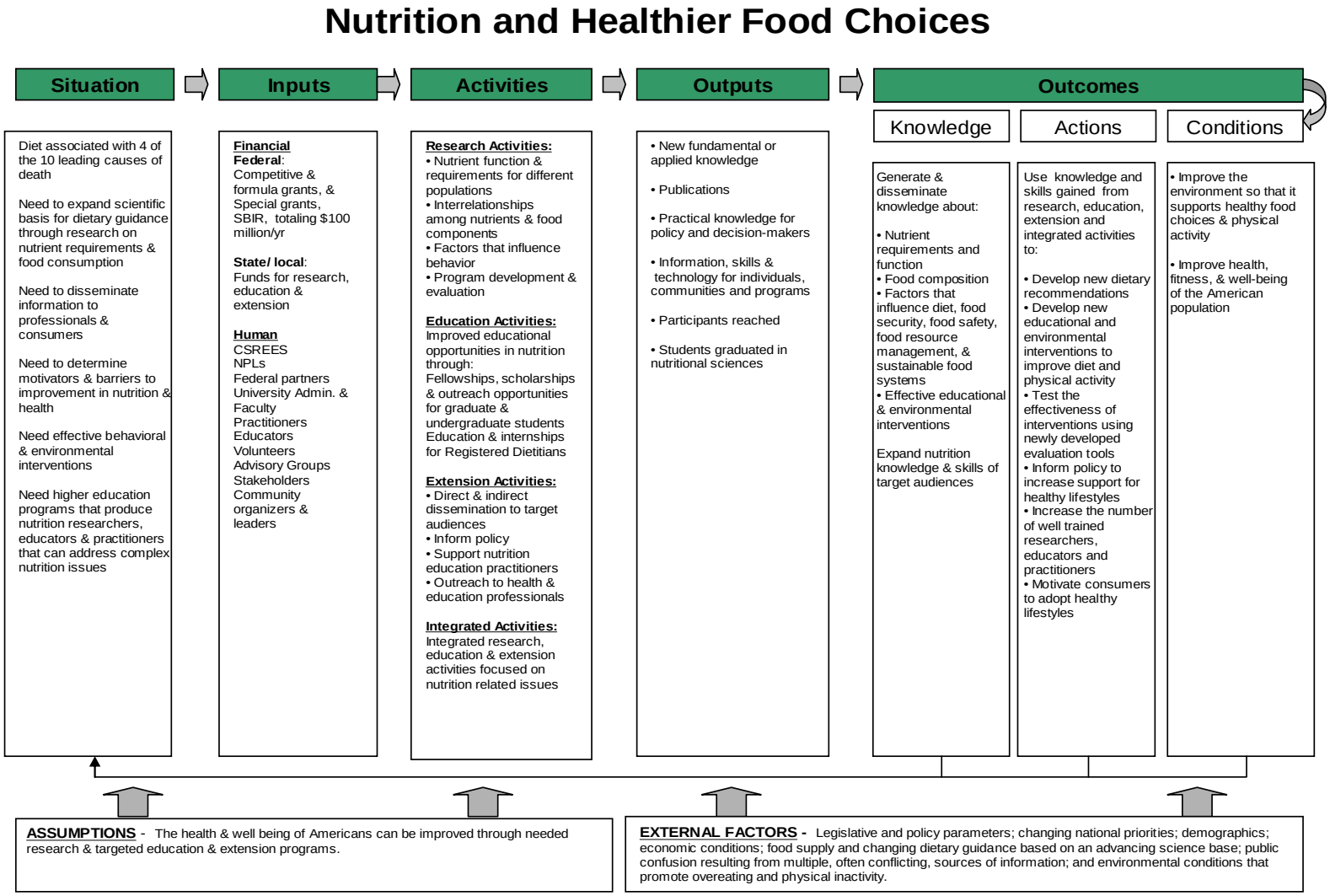
Sponsor research on food choices and determinants, including cost, education, and environmental and socioeconomic factors

**Performance Measures Progress Table**

| **Performance Measure Description**: Dietary improvement achieved by EFNEP participants | | |
|---|---|---|
| **Explanation of Measure**: The percentage of EFNEP graduates who improve their diets toward meeting MyPyramid recommendations following their participation in EFNEP. Past data from 1993-2005 showed 95% ate nearer to Food Guide Pyramid recommendations. The MyPyramid criteria have been incorporated into the educational program and the evaluation system. The goal will be to maintain this high level of improved diet intake behavior | | |
| **Baseline (FY 2005)**: 93% | **Target** | **Actual** |
| Fiscal Year 2006 | 93% | 92% |
| Fiscal Year 2007 | 93% | Available September 2008 |
| Fiscal Year 2008 | 93% | |
| Fiscal Year 2009 | 93% | |
| Fiscal Year 2010 | 93% | |

| **Performance Measure Description**: Development and use of effective intervention methods and strategies to change behavior and improve diet and physical activity in target populations. | | |
|---|---|---|
| **Explanation of Measure**: The development of effective intervention methods and strategies does not in itself ensure improvements in overall nutritional well being. There are intervening factors that are beyond the control of the research. Therefore, the use of an output measure in this instance is appropriate. These new interventions lead to advances in the ability of educators to improve results for dietary intakes and food related behavior for target audiences. New interventions reflect the successful application of basic nutrient, psychosocial and educational research. The goal will be to add one new intervention per year. | | |
| **Baseline (FY 2005)**: 1 | **Target** | **Actual** |
| Fiscal Year 2006 | 2 | 2 |
| Fiscal Year 2007 | 3 | 3 |
| Fiscal Year 2008 | 4 | |
| Fiscal Year 2009 | 5 | |
| Fiscal Year 2010 | 6 | |

**Figure 1: Portfolio Logic Model**



*Portfolio Inputs*

**Portfolio Level Funding Table and Bar Chart**

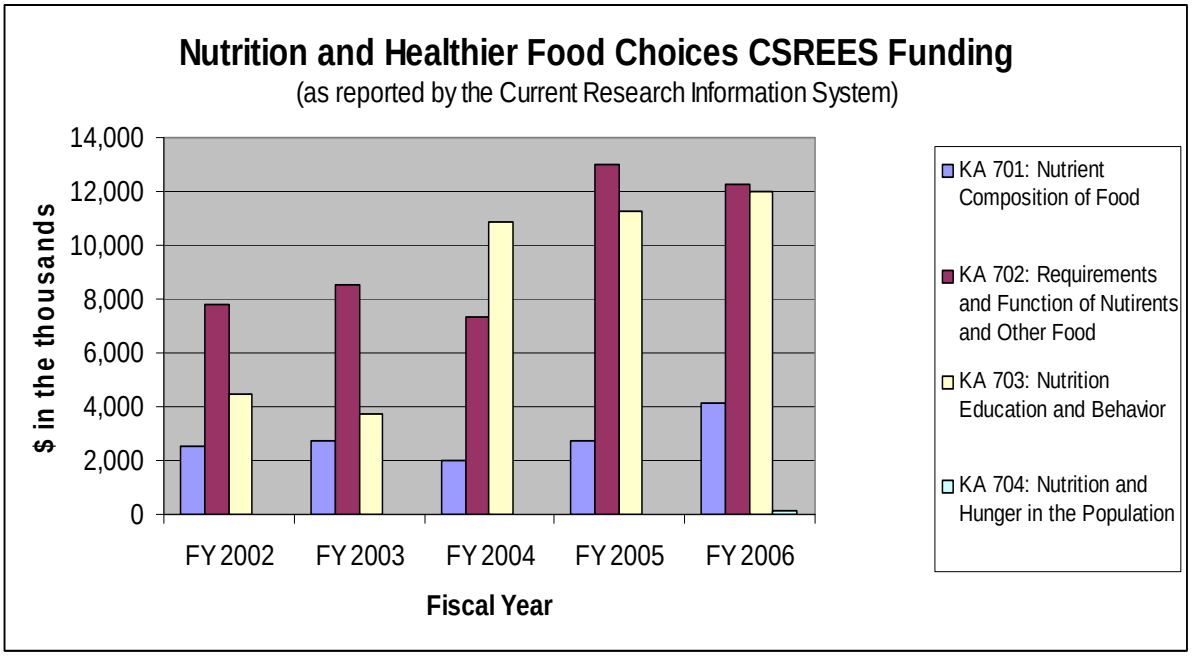
Unless otherwise noted, the source of information for the tables and charts in this section is the Current Research Information System (CRIS), which currently contains primarily research and education funding. Education funding is included starting with FY 2003. Extension funding by KA will not be available until FY 2007 funds are reported.

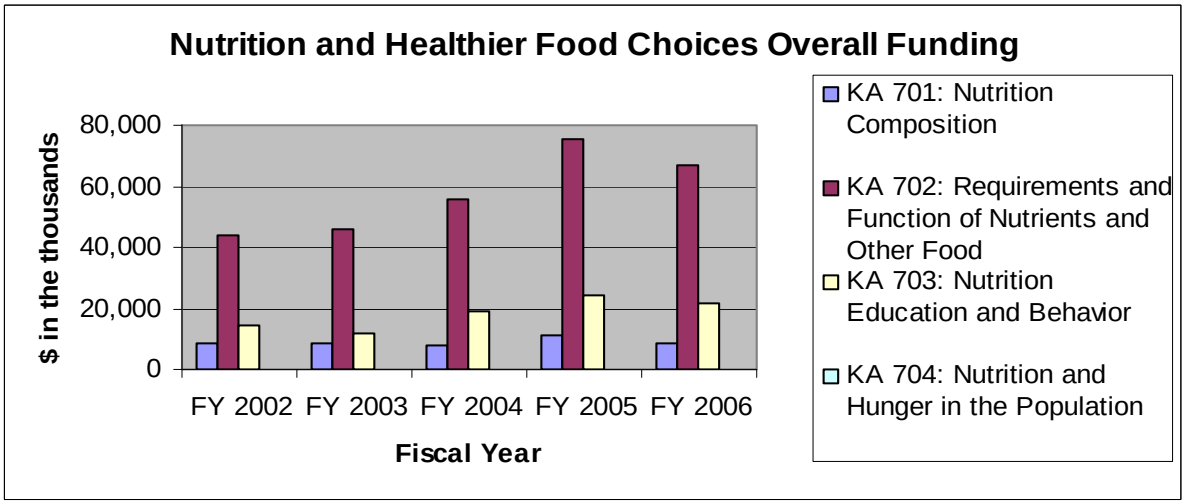
**Table 1: Portfolio Nutrition and Healthier Food Choices Summary Funding Table for Knowledge Areas for FY 2002-2006**

| Funding Sources | ($ in the Thousands) | | | | | |
|---|---|---|---|---|---|---|
| | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **All CSREES Funding*** | 14,748 | 14,990 | 20,174 | 26,975 | 28,536 | **105,423** |
| **All non-CSREES Funding** | 51,984 | 51,524 | 62,825 | 83,852 | 68,854 | **319,039** |
| **Total Funding** | 66,732 | 66,514 | 82,999 | 110,827 | 97,390 | **424,465** |
| **Percentage of CSREES Funding** | 22% | 23% | 24% | 24% | 29% | **25%** |

Source: Current Research Information System
*EFNEP Funding not included

Most of the increase between FY03 and FY04 was due to the addition of the NRI Human Nutrition and Obesity Program. This was due to Congressional action allowing the NRI to fund integrated projects and increasing the NRI budget in FY03. Obesity was one of the new programs chosen to be funded by CSREES because of its high priority. Although the NRI has not seen recent increases, it has not been cut. Nevertheless, the purchasing power goes down as the cost of research escalates. It is unlikely that NRI funding on obesity research will be cut in light of current statistics and successes that are being seen from the FY03 projects.




Source: Current Research Information System

*Portfolio Results*

**Portfolio Outcomes**

- Through National Research Initiative funding, a Relative Antioxidant Index (RACI) was created by statistically integrating the antioxidant capacity values generated using seven different chemical methods. The RACI was validated using 20 commonly consumed vegetables. This index provides standardization of information about the antioxidant content of various fruits and vegetables.

- Supported by National Research Initiative competitive funding, researchers found that grape phenolic extracts are highly effective against specific virulent strains of *S. mutans*, the organism responsible for tooth decay. The extracts from pomace (a waste product from processing grapes into juice and wine) exhibited higher activity than those from whole fruit, which means that fermented pomace is a promising source for extraction and isolation of compounds for prevention of dental caries.

- With National Research Initiative funding, a survey of licensed child-care centers in California, Colorado, Idaho and Nevada showed that only 38% allowed children to serve themselves. When children serve themselves they are less likely to overeat.

- Funded by the Federal Administration grant the Diabetes Detection and Prevention Project developed two booklets, "On the Road to Living Well with Diabetes" and "Keep Moving, Keep Healthy with Diabetes". Program evaluation coordinated by the Joslin Diabetes Center show educational materials, along with diabetic screenings, and diabetic awareness activities have successfully reached underserved and at-risk-for-diabetes clients in the five partner states.

- Through the support of Smith-Lever 3(d) funding the following outcomes resulted from EFNEP activities. Among adult EFNEP clients, fruit and vegetable intakes increase by almost 1.5 servings per day, 83% improve food resource management practices and 45% increase physical activity. Youth increase knowledge and skills related to dietary choices, food preparation and food safety.

- A research study funded by the National Research Initiative was designed to prevent or reduce premature births by increasing the supply of docosahexanoic acid (DHA) to the pregnant mother through a functional food supplement or a nutrition intervention was successful and led to a significant 4-day increase in gestational length.

- Kauai's Community Food Program Grant, funded by the Community Food Projects (CFP) program, increased economic viability for local farmers and food security for residents.

- 4-H has been successful in obtaining private funding to promote healthy lifestyles and decrease childhood obesity.

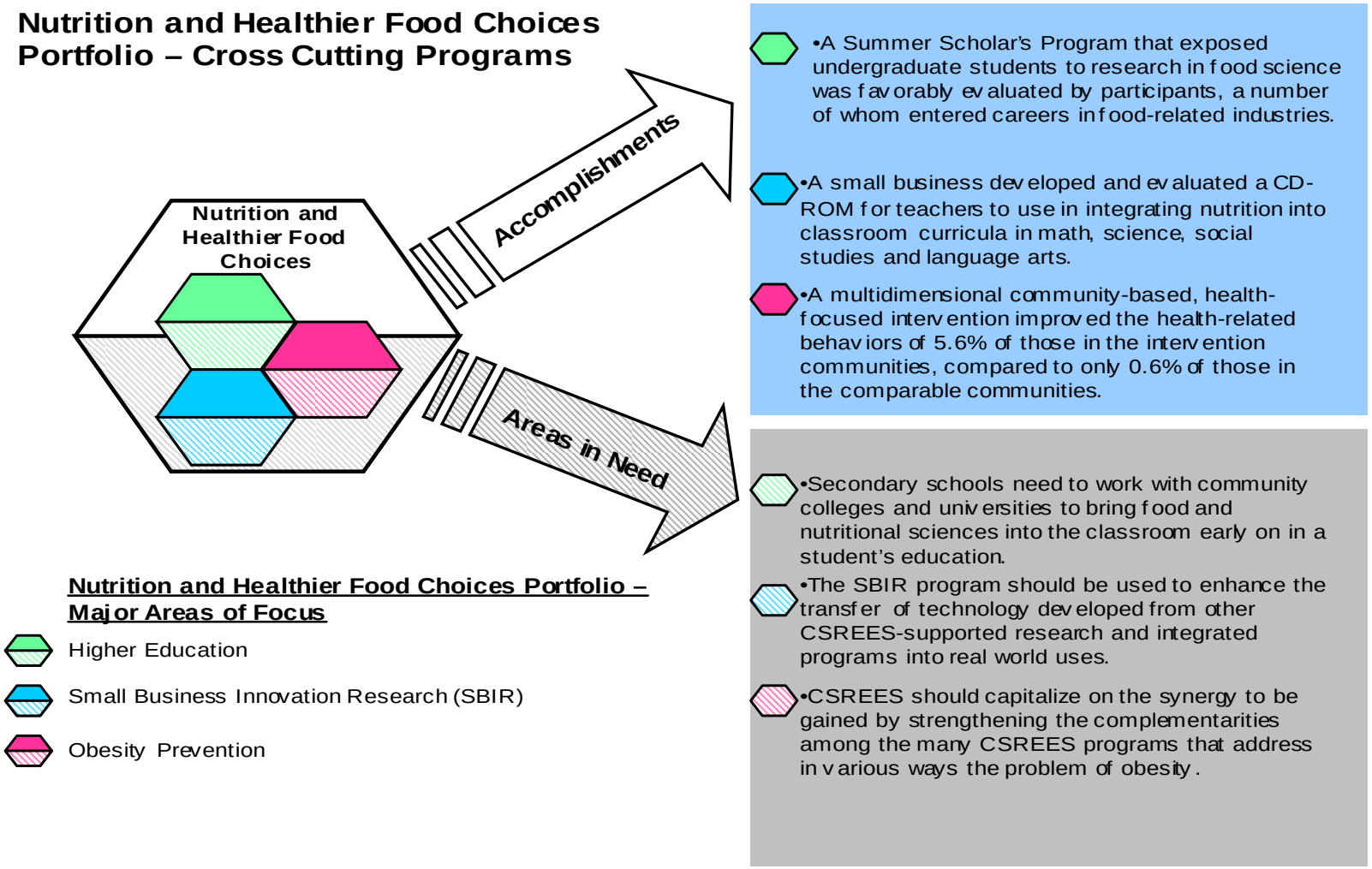
- The National Multidisciplinary Food Science Summer Research Program, which is funded through CSREES's Institution Challenge Grant, exposed undergraduate students to research in food science. Since initiation of the program 118 undergraduate students have been introduced to food science, 18% representing traditionally underrepresented minorities. Currently 21 have either completed an MS or PhD in food science or a related field, 41 are currently enrolled in an MS or PhD in food science or a related field and 27 are employed in either the food science industry or food science research. For example, a student from the 2000 program is currently a Human Resource Supervisor for Anheuser Busch and a student from the 2004

program is working as an Operations Management Associate for Yoplait, General Mills.

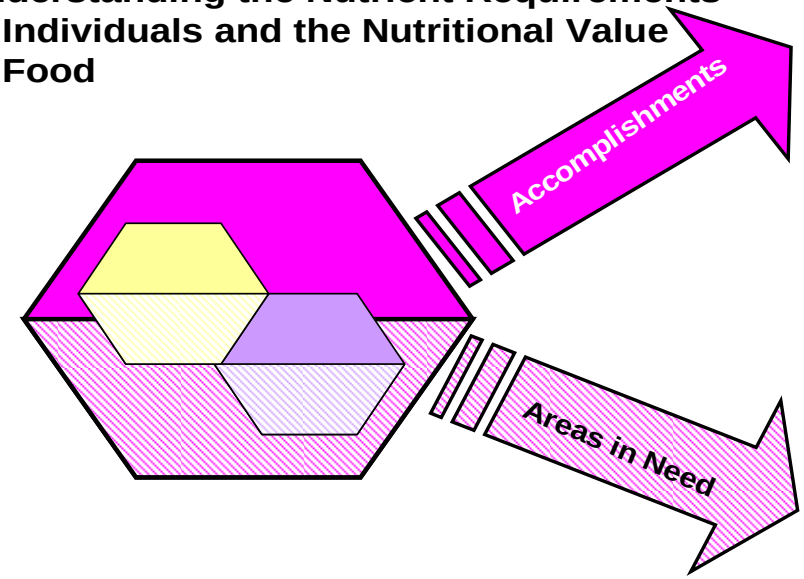
- A small business developed and evaluated a CD-ROM for teachers to use in integrating nutrition into the classroom curricula in math, science, social studies and language arts. Used funding provide through Small Business Innovation Research Program (SBIR).

- In a multidimensional community-based health-focused project funded by the Initiative for Future Agriculture and Food Systems, 5.6% of individuals in the intervention communities reported changing behaviors compared with only 0.6% in the comparator communities.

**Figure 2: Portfolio Honeycombs**



**Improve Human Health by Better Understanding the Nutrient Requirements of Individuals and the Nutritional Value of Food**




**Portfolio's Major Areas of Focus**

- Basic Nutrient Requirements
- Bioactive Food Components

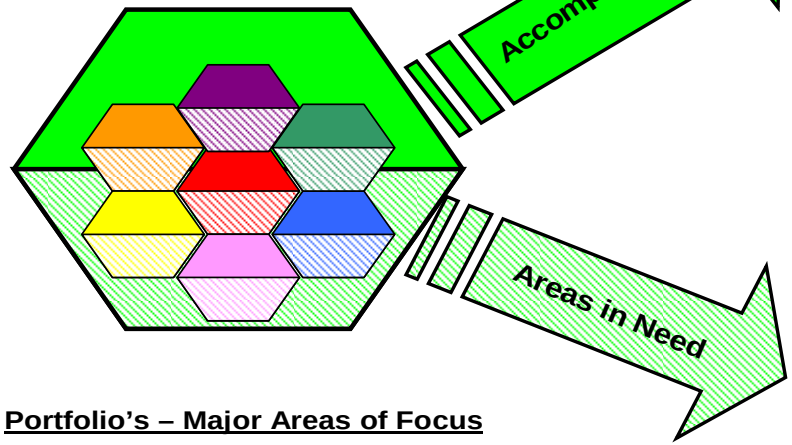
- •A Relative Antioxidant Capacity Index (RACI) was created by statistically integrating the antioxidant capacity values generated using seven different chemical methods. The RACI was validated using 20 vegetables that are commonly consumed in the U.S. This index will allow for more standardization of Information about the antioxidant content of fruits and vegetables.

- •Researchers found that grape phenolic extracts are highly effective against specific virulent strains of *S. mutans*, the organism responsible for tooth decay. The extracts from pomace (a waste product from grape processing into juice and wine) exhibited higher activity than those from whole fruit, which means that fermented pomace is a promising source for extraction and isolation of compounds for prevention of dental caries.

- •Biomarkers to assess status for other nutrients need to be developed. Because most Americans do not suffer from severe nutrient deficiencies, yet marginal deficiencies can still have significant health effects, biomarkers should be sensitive enough to determine which individuals have marginal intakes.

- •More information is needed about the mechanisms by which bioactive food components impact health, and about the dietary levels needed to achieve such impacts. This information can then be used by policy makers to determine marginal intakes in individuals.

## Promote Healthier Food Choices and Lifestyles




**Portfolio's – Major Areas of Focus**

- Nutrition Education, Behavior, & Obesity Research & Integrated Research, Education & Extension Programs
- Cooperative Extension System (CES)
- Expanded Food & Nutrition Education Program (EFNEP)
- Food Stamp Nutrition Education (FSNE)
- Maternal and Child Health Program
- Community Food Projects Competitive Grants Program
- 4-H Youth Development Program

- •A survey of licensed child-care centers in California, Colorado, Idaho, and Nevada showed that only 38% allowed children to serve themselves food. Other researchers have reported that when children are allowed to serve themselves, they are less likely to overeat.
- •The Diabetes Detection and Prevention Project developed two booklets, On the Road to Living Well with Diabetes and Keep Moving, Keep Healthy with Diabetes. Program evaluation coordinated by the Joslin Diabetes Center show educational materials, along with diabetic screenings, and diabetic awareness activities have successfully reached underserved and at risk- for-diabetes clients in the five partner states of this project.
- •Fruit & vegetable intakes increase by almost 1.5 servings per day, 83% improve food resource management practices and physical activity increase for about 45% of adult clients; youth increase knowledge and skills related dietary choices, food preparation and safety.
- • 56% of participants reported adopting new diet quality or physical activity behaviors, 72% reported intent to adopt better food security practices, 65% demonstrated increased knowledge to try new low-cost foods/recipes, 74% reported having adopted beneficial shopping techniques.
- •A research study designed to prevent or reduce premature births by increasing the supply of docosahexanoic acid (DHA) to the pregnant mother through either a functional food supplement or a nutrition intervention was successful and led to a significant 4-day increase in gestational length.
- •Kauai's Community Food Project grant increased economic viability for local farmers and food security for residents.
- •4-H has been successful in obtaining some private funding to promote healthy lifestyles and decrease childhood obesity.

- •The factors that influence obesity need to be understood well enough to develop effective interventions and sensitive outcome measures for the prevention of obesity.
- •An understanding of why many underserved people screened with diabetes never make it to a health care provider. Increased project outreach for diabetes screening and use of education materials to CES nationally.
- •Better tools for measuring physical activity changes in adults and youth are needed, as well as new strategies for helping clients adopt healthier food and activity practices.
- •An ECOP FSNE Planning Team was appointed to enhance the performance and impact of FSNE; increase the visibility of the role of Cooperative Extension; examine how the Land-Grant System is supporting low-income nutrition efforts and work to eliminate duplication of efforts where appropriate. A virtual office was identified to serve as a resource center for the system for FSNE.
- • Child-care staff and directors need more education about the impact of mealtime environments on child health and development, particularly on the importance of children being allowed to self-serve and on child-care center staff serving as role models for eating behavior.
- •The community food program seeks to energize local economies, create food access in low income communities, sustain environmentally sound local food production to help local food systems flourish.
- •In the future, more curricula and experienced staff will be needed to work with youth in out-of-school settings.

## Portfolio Leadership and Management

Stakeholder Assessment

CSREES works closely with stakeholders interested in food, nutrition and healthy lifestyle choices to achieve excellence in academic, research, and extension programs in the food and agricultural sciences and realize new directions. Both formal and informal procedures are used to obtain stakeholder input. These include stakeholder workshops, symposia, technical reviews, peer panel recommendations, presidential directives, interagency agreements, and strategic plans for education programs. CSREES and its educational partners conduct stakeholder listening sessions in order to assess program effectiveness and directions and to identify new and emerging issues.

The competitively awarded National Research Initiative (NRI) Nutrition and Food Safety and Quality cluster use various means of collecting stakeholder input including an open solicitation through the Request of Application (RFA) development process and focused listserv requests to Chairs of nutrition and food science in universities across the country as well as other CSREES listservs. It also uses formal reports such as those on research needs from the Institute of Medicine, the Dietary Guidelines Advisory Committee and the National Association of State Universities and Land-Grant Colleges (NASULGC) committees -- Experiment Station Committee on Organization and Policy (ESCOP) and Extension Committee on Organization and Policy (ECOP). As a result, the current RFA related to obesity prevention efforts, emphasizes behavioral and environmental factors associated with obesity. Copies of stakeholder input provided to CSREES for competitive programs in the areas of food, nutrition and health can be found at: http://www.csrees.usda.gov/business/reporting/stakeholder/fo_stakeholder.html .

The Expanded Food and Nutrition Education Program (EFNEP) and the CSREES liaison with the Food Stamp Nutrition Education (FSNE) program convene ad hoc committees to solicit stakeholder input and accomplish specific tasks of national importance. Recent examples include several committees organized to inform development and testing of the Nutrition Education Evaluation and Reporting System (NEERS) software, and the 1890 EFNEP Planning Committee which was organized to jumpstart the 1890 Institutions' involvement and success with EFNEP when funding became available.

Additionally, in 2007, national leadership for EFNEP and the FSNE liaison role were realigned to reflect a low-income audience focus supported by specific programs. Stakeholder input has been, and continues to be essential to the redefining of national leadership for programs serving this audience. In June, 2007 an ECOP FSNE Planning Team was appointed to develop a plan to enhance performance and visibility of FSNE through the Cooperative Extension System. This general plan for shared national leadership was approved by ECOP in November. Members of the ECOP FSNE Planning Team and FSNE Program Development Team are working through the details of this plan for subsequent implementation. These teams include State Program Coordinators, FCS Program Leaders, and (for the Planning Team) Extension Directors/Administrators.

Prioritizing Stakeholder Input and Allocation

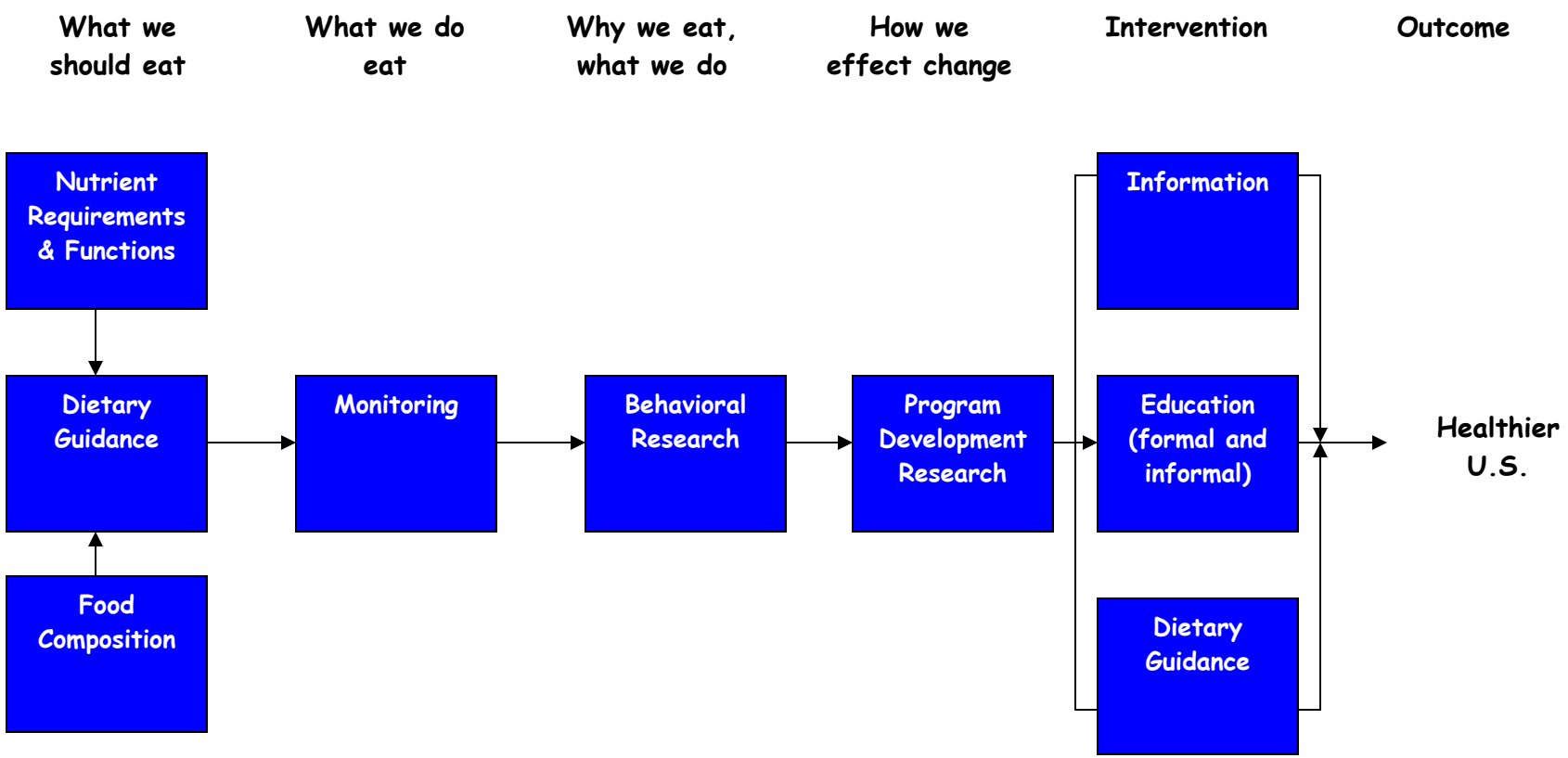
As leaders in the field, the NPLs, with responsibility in the nutrition and healthier food choices portfolio area, carefully review stakeholder input and make strategic priority decisions.

For example, changes in the Nutrition-Food Priority in the NRI were a direct result of input provided by nutrition and food science department chairs in addition to input from professional societies.

Approaches to Addressing the Situation of Focus

Figure 3 provides a visual displaying how the components of Nutrition and Healthier Food Choices' Portfolio and the work of other agencies complement each other in progressing toward the achievement of a HealthierUS. Coordination is ensured by active participation in intra- and inter- departmental nutrition coordinating committees. In addition, CSREES works to integrate research, education and extension activities.

**Figure 3: CSREES: Research, Education and Extension for a HealthierUS**



The first four columns of Figure 3 describe the research conducted to better understand "What we should eat", "What we do eat", "Why we eat, what we do" and "How we effect change". This is the basis for the intervention programs shown in the last column of the figure. Guidance on food safety and food resource management is also part of nutrition education programs, but CSREES supported research in these areas has been included in other Portfolios, including Quality of Life in Rural Areas portfolio and therefore is not part of Figure 3.

The last column describes the direct intervention strategies. The top block in the last column, "Information", refers to the dissemination of nutrition information which is a function of all agencies involved in nutrition. Programs depicted in the second block, "Education (formal and informal)", include formal nutrition education supported by CSREES's Higher Education programs, as well as informal education programs carried out by CSREES's Cooperative Extension System (CES) program in Food, Nutrition and Health; CSREES's Expanded Food and Nutrition Education Program (EFNEP); CSREES's 4-H and youth development programs; the Maternal and Child Health program which is coordinated between CSREES and ARS; and the Food Stamp Nutrition Education (FSNE) program which is funded by USDA's Food and Nutrition Service (FNS) and state governments and is largely carried out by CES. Barriers, implementation gaps, and resource shortages encountered by nutrition education intervention programs inform the agenda for research on nutrient requirements, food composition and nutrition education. This column also includes direct interventions provided by food assistance programs, most of which are administered by FNS (e.g., Food Stamp Program, WIC and Child and Adult Care Feeding Programs), and CSREES's Community Food Projects Program which takes an ecological approach to meeting the food needs of high risk communities.

Providing Guidance to Partners/Grantees

A series of steps have been undertaken to provide guidance to our partners. For EFNEP, a program plan is due to the National Office annually. Each program plan is reviewed by National Staff. Feedback on these plans and guidance is provided via email. Recognizing that 1890 institutions are new to EFNEP, national staff have initiated brief conference calls as needed to discuss program implementation, as well as how to meet EFNEP's goals within the funding and staff limitations of the institution.

With the consolidation of national leadership for low-income nutrition education programming at CSREES, a state-based FSNE administrative office has been created at South Dakota State University. It serves as a resource center for the land-grant university system and keeps them informed of new developments, best practices and the work of ad hoc committees. In addition, the office monitors and reviews program plans. If there are specific concerns communicated by the universities the FSNE liaison is alerted. Themes of broad concern are shared with FNS, the administering agency for FSNE, and with universities as appropriate.

Post-award Review Process

A post-award review process is in place for both formula grant funded and competitively funded research and integrated projects. Most projects are required to submit annual progress reports to CSREES' electronic Current Research Information System (CRIS). Progress reports are reviewed by National Program Leaders who are encouraged to contact the principal investigator if the report does not have sufficient substance and request a revised report. Project Directors of projects funded by the National Research Initiative (NRI) and Community Food Projects are required to attend annual workshops to report on their progress. In 2007, the NRI held workshops for the Bioactive Food Components for Optimal Health and Human Nutrition and Obesity program at CSREES Headquarters in Washington, DC, June 25-28; over 100 Project Directors and other project personnel participated.

Each institution which receives EFNEP Formula Grant funding is required to submit data through the Nutrition Education Evaluation and Reporting System (NEERS). This data is reviewed by National staff and compared to previous year's data. Timely feedback and suggestions are sent to the institution. Tier data is also sent to the institutions so they can see how their results compare to institutions with similar funding levels.

**Programmatic or Management Shortcomings**

Although much progress has been made, at this time CSREES Information System (CIS) has yet to be implemented. Issues still remain with respect to accessing information from the Plan of Work (POW) Annual Reports from the states as well as accessing information entered into the CRIS system.

**Key Future Activities and Changes in Direction**

Several multi-year activities are underway at the Agency level. For example EFNEP is in the process of being strategically aligned with other formula grants supported by CSREES. This strategic realignment will enrich the community nutrition education focus within the Families, 4-H and Nutrition Unit, and within CSREES. This is in support of the initial action taken by the agency to incorporate EFNEP into the Grants.gov formula grant process. This will allow EFNEP to be in compliance with the Federal Financial Accountability and Transparency Act of 2006 (FFATA) thereby strengthening the accountability of EFNEP funds.

EFNEP's evaluation and reporting system is also undergoing considerable revision. A task force is being convened to develop a proposal to upgrade the Nutrition Education and Evaluation and Reporting System (NEERS) to a web-based system and to integrate it with the CNE Logic Model, the CIS and potentially other public databases. It is anticipated that these changes will improve the software's technological capabilities and the data resulting from its use. Federal and State partners are collaborating on all Agency related activities to ensure that these developments are helpful on multiple levels for maximum efficiency. These efforts are also directed to areas addressing the needs and concerns of low-income populations.

There is an increase need to train students in nutrition research, education and extension. To adequately address the ever-increasing need for higher education programs that can produce nutrition educators and researchers capable of working across disciplines related to diet and health, a multi disciplinary approach to curriculum development and program direction is warranted. Concurrently, a series of steps need to be taken by secondary schools to work effectively with local community colleges and universities to bring human nutrition and nutritional sciences into the classroom early in a student's education. This will increase awareness of nutrition, help establish a framework for nutrition as part of a healthy lifestyle. This strategy has the potential to increase enrollment in human nutrition, nutritional science and food and technology programs.

Multi or cross disciplinary training is needed to help scientists to better deal with multifaceted issues related to nutrition, physical activities, and health. Obesity is a huge problem and requires new models. CSREES has been investigating the integration of nutrition and exercise science curriculum and the opportunity for dual degrees in these two disciplines at the LGU for both undergraduate and graduate studies. An initial program assessment has been conducted. Integrated or dual programs were identified. with course requirements. These need to be mapped out against student career opportunities and employment placemen

New information delivery methods need to be identified. Along with the substantive material and information provided though higher education in the classroom, the method of delivery and range of dissemination of this information is critical to accessibility and learning. On-line courses and distance learning have now become vital components of higher education and nutrition subjects. These methods are conducive to this type of learning and should continue to be used effectively as part of the multi disciplinary approach to nutrition education. Currently, a SERD funded projected is underway to use interactive, computer-assisted-instruction (CAI) in undergraduate dietetic studies. It is expected that use of this type of instruction will benefit both students and faculty. Students will learn to effectively motivate clients and consumers to make healthy food choices. Faculty will be able to include more interactivity in course programming and student testing; thereby, providing rapid feedback and suggestions for improvement in course work. The Internet-based, module can be used by educational institutions throughout the United States. It could be utilized in courses as an interactive teaching tool available in a computer laboratory or as an out-of-class assignment. With almost 300 certified dietetic programs in the United States, the module has the potential for reaching a large percentage of the students who will become the next generation of dietetic professionals.

CSREES in cooperation with public institutions, private sector partners, and the Land-Grant University System encourages higher education in human nutrition disciplines that recognize current public health concerns. The partnership supports a multi-disciplinary approach towards enhancing nutrition researcher and education curricula and programs. New directions in this regard should include curriculum enhancement and the creation of multi-purpose foods laboratory in support of nutrition and dietetics programs; agric-business opportunities at home and on an international level; Ph.D. training programs in

support of food safety and bio-security; career development of minority and underserved graduate students through multi-institutional collaboration; curriculum development to include the psychological, behavioral and economic aspects of food; the integration of diet with physical activity research and evaluation to advance healthy lifestyles; and on-line and distance training opportunities as part of outreach education efforts. These new directions strengthen and support the higher education and research framework of human nutrition and related disciplines; strengthen the field devoted to addressing nutrition education and behavior issues, promote the advancement of minority graduate students and offer the opportunity for multi disciplinary education.

Complex health related issues require new paradigms. Health challenges associated with obesity, continuing rapid advancements in technology, increased attention to vulnerable audiences and the increasingly complexity and comprehensiveness of national nutrition guidelines and resources (dietary guidelines, MyPyramid, etc.), point to the ever increasing need to coordinate and collaborate nutrition education efforts at the community, state, and federal levels. As a unit, within CSREES, with other agencies, and in conjunction with other public and private entities, we need to continue transformation of how we do business. Some examples of emerging developments, working across agencies – FNS, CNPP, ERS, etc. for greater application and implementation of the Healthy Eating Index, MyPyramid and Dietary Guidelines for Americans.

**What are Others Doing?**

- The Center for Nutrition and Policy Promotion (CNPP) has revised the Dietary Guidelines and developed the Healthy Eating Index. To promote healthful diets they have created a MyPyramid webpage with an updated Foods Database. This work is complementary to the work described in this portfolio. For example, the updated MyPyramid Foods Database was incorporated into EFNEP's Nutrition Education and Evaluation Reporting System (NEERS) for use in program participant education and evaluation of intervention results.

- The Center for Nutrition and Policy Promotion (CNPP) has taken leadership and facilitated the addition of new information to the MyPyramid website, specifically in the area of pregnancy and infant feeding. Extension specialists and a CSREES National Program Leader were part of the team. They played a major role in making certain that the information was user-friendly and applicable to our clients throughout the country. www.mypyramid.gov/mypyramidmoms/index.html

- Plans are underway to update the Dietary Guidelines for Americans for the 2010 release (a joint DHHS and USDA project). CSREES has been contacted to provide suggested names for team members for this important project.

- The Department of Health and Human Services has been actively leading the Physical Activity Guidelines Advisory Committee. This committee will make recommendations on the development of the first federal guidelines to focus on physical activity. The Physical Activity Guidelines for Americans, scheduled for

release in 2008, will provide science-based recommendations on the latest knowledge about activity and health, with depth and flexibility to target specific population subgroups, such as seniors, children, and disabled Americans. CSREES provided four nominations of extension faculty for consideration to the Advisory Committee and serves as a member of the Physical Activity Interest Group.

- The National Institutes of Health plans for obesity-related research can be found at: http://www.obesityresearch.nih.gov/about/about.htm. CSREES avoids overlap with the NIH portfolio by focusing on the agency's strengths, which include partnerships with the Land-Grant University system and the Cooperative Extension Service. Focus is exclusively on research and integrated projects exploring behavioral determinants that can explain overweight and obesity and development of effective intervention strategies to prevent development of overweight and obesity.

## Section II: Primary Knowledge Areas

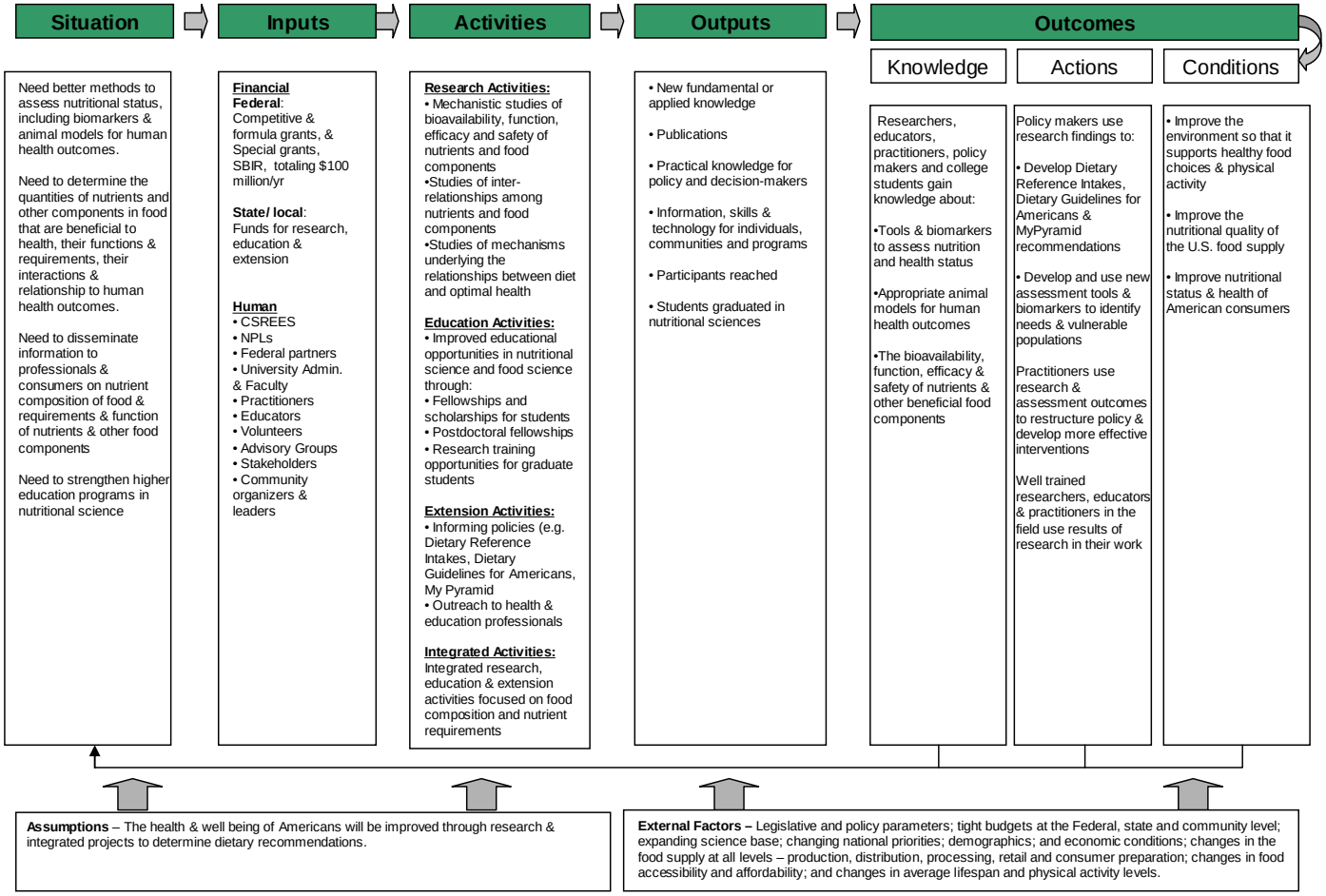
### Knowledge Area 701: Nutrient Composition of Food and Knowledge Area 702: Requirements and Function of Nutrients and Other Food Components

Introduction

The work conducted in this portfolio on nutrient composition, requirements and function is the basis of guidance on diet and physical activity, carried out through Knowledge Areas 701 and 702. The research, education, extension and integrated activities carried out under KA 701 expand the body of knowledge about the composition of food—the levels of nutrients and other bioactive food components that are in foods typically consumed by Americans. Knowledge generated from activities under this KA serves as the basis for future work to be conducted under KA 702, particularly in areas related to composition and functions of foods. These activities expand the body of knowledge about the requirements and function of nutrients and other bioactive components in food—what components are needed, the amounts required for optimal health, and how these components function in the body to promote health.

## Logic Model

### KA 701 Nutrient Composition of Food and 702 Requirements and Function of Nutrients and Other Food Components



Key Outputs

- Between 2000 and 2006, CSREES funded a total of 762 projects that supported food composition research (KA 701) and 2119 projects that supported research on requirements and function of nutrients and other food components (KA 702).

  Projects carried out under these KAs include: 1) studies to determine the levels of nutrients in ethnic and other foods that have not been previously analyzed; 2) grants for the purchase of equipment to analyze food composition, particularly in foods of state and regional interest; 3) studies to determine the levels of bioactive components (e.g., conjugated linoleic acid, resveratrol, soy phytoestrogens) in food; 4) studies to determine nutrient requirements for specific populations for which requirements have not been well-defined, e.g., infants and older adults; 5) studies to ascertain the bioavailability, efficacy, safety, and function at the molecular level of non-nutrient bioactive food components; 6) studies of the effects of dietary nutrients and other bioactive components on gene regulation; 7) studies of the interrelationships among dietary components; and 8) studies to determine the mechanisms underlying the relationship between diet and optimal health, e.g., influence of dietary components on the immune, cardiovascular, and central nervous systems.

- The results of research and integrated projects are presented to research and extension/outreach professionals through journals and presentations at professional meetings directed towards them. Professional societies, at which research findings are disseminated to other researchers, educators, and extension professionals via oral presentations or posters, include the American Society for Nutrition (ASN), the Institute of Food Technologists (IFT), the Society for Nutrition Education (SNE) and the American Dietetic Association (ADA). Proceedings from many of these conferences are later made available in scientific journals or on web sites so that the information can be disseminated beyond the original conference attendees. Additionally, the National Research Initiative Competitive Grants Program "Improving Human Nutrition for Optimal Health" (renamed "Bioactive Food Components for Optimal Health" in FY 2004) provided partial support for a number of conferences, including:

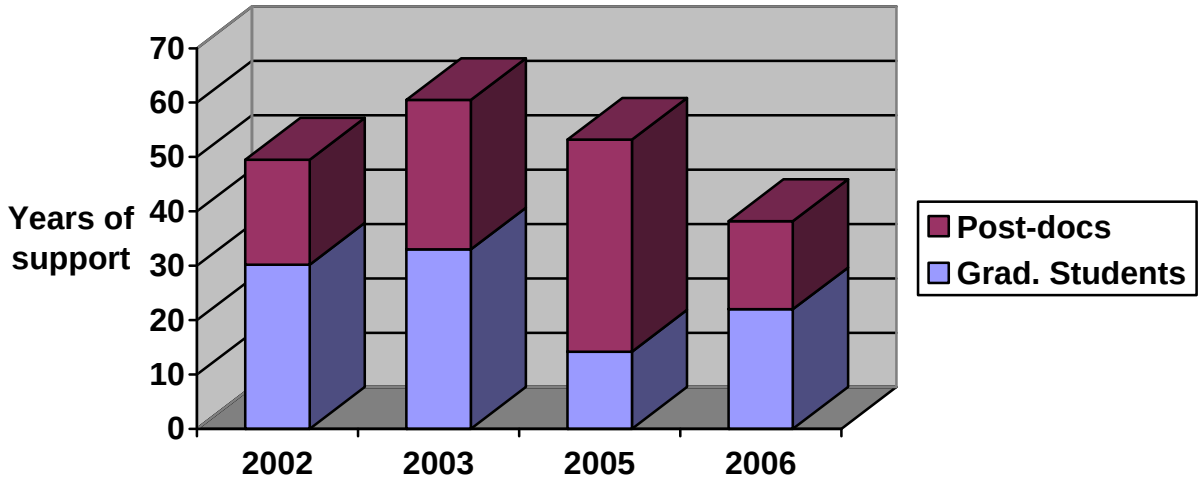
  - The International Trace Elements Conference in 2003.
  - A joint meeting of the 5$^{th}$ International Food Data Conference and the 27$^{th}$ National Nutrient Databank Conference in 2003.
  - Whole Grains and Health, a conference sponsored by the University of Minnesota in 2004.
  - Vitamin E and Health, a conference sponsored by the New York Academy of Sciences in 2004.
  - Diet Constituents and Molecular Regulation, a summer conference sponsored by the Federation of American Societies for Experimental Biology (FASEB) in 2004.
  - Trace Element Metabolism, a FASEB summer conference in 2004.
  - Retinoids, FASEB summer conferences in 2002 , 2004 and 2006.

- Nutrient Control of Gene Expression and Signaling, a FASEB summer conference in 2005.
- Folate, Vitamin B12 and One-Carbon Metabolism, a FASEB summer conference in 2004 and 2006.
- Trace Elements in Diet, Nutrition and Health: Essentiality and Toxicity, a consortium consisting of the International Society for Trace Element Research in Humans, the Nordic Trace Element Society and the Hellenic Trace Element Society in 2007.
- Symposium on Managing Menopause: a Common Denominator in the Prevention and Treatment of Chronic Disease in 2007
- 2nd International Symposium on Human Health Effects of Fruits and Vegetables in 2007

Peer-reviewed journal articles and conference proceedings provide targeted audiences with easy access to research findings. Refer to Appendix G. Educators and practitioners use this information to develop educational materials about the composition of food, for example, materials on how to read food labels or about foods that are good sources of important nutrients. Public officials also use research findings as a basis for policy changes designed to improve the health of Americans (e.g. changes in food labeling requirements, Dietary Reference Intakes and Dietary Guidelines for Americans).

- Graduate and undergraduate education activities are covered in Higher Education Portfolio. Research projects supported by CSREES frequently include financial support for graduate students, postdoctoral researchers and sometimes for undergraduate students to work on research and integrated projects. Between 2002 and 2006, research projects funded by the National Research Initiative "Improving Human Nutrition for Optimal Health" program provided support for a total of 50 graduate students for a total of 102 person-years – an average of 2.0 years of support per student (see Figure 4). The program also supported 45 post-docs for a total of 102 person-years – an average of 2.3 years of support per post-doc. Note that data are not presented for 2004. Because of a delay in publication of the Request for Applications for the NRICGP in FY 2004, projects funded with FY 2004 funds were not awarded until FY 2005 and therefore are included in the figures presented for FY 2005.

**Figure 4: Support for Graduate Students and Postdoctoral Researchers provided by National Research Initiative Competitive Grants under Knowledge Area 702, Requirements and Function of Nutrients and Other Food Components, 2002-2006**




Graduate students are also given the opportunity to present the results of their research at professional society meetings such as those listed above under "Extension". Additionally, CSREES holds two USDA/CSREES Grantsmanship Workshops each year, one in Washington, DC and one in the Western Region. These workshops are open to anyone interested in learning more about CSREES competitive funding programs, effective grant writing and the grant review and approval process. Many National Program Leaders participate in additional workshops relating to their programs in conjunction with professional society meetings. Between 2002 and 2006 over 10 such workshops were conducted by CSREES nutrition staff Research, extension, and integrated projects supported by CSREES have provided opportunities for teaching the next generation of researchers, educators, and practitioners by allowing for student and postdoctoral participation in research and integrated projects.

- CSREES provides opportunities for projects to integrate research, education, and extension functions so that new knowledge resulting from the research is transmitted to students and consumers and there is opportunity for feedback from students and consumers which serves to guide the research process. Research in human nutrition is of interest to American consumers and, because of this interest, reports of nutrition research findings are frequently carried in the news media – television, radio, internet and print publications. Because of the direct application of nutrition research findings to extension and education, practitioners and educators need to work closely with researchers to ensure that the information consumers receive is accurate. Therefore, researchers, practitioners and educators tend to work in teams. The Multistate Research Fund process provides a structure for multistate, long term projects and has

long been a mechanism for drawing researchers, educators, practitioners and graduate students together. In recent years, the Multistate Research Fund approval process has required projects integrate research, education and extension functions. Three such projects include components that deal with food composition or requirements and function of nutrients and other food components. Appendix H for complete list of multistate research fund projects in nutrition and food science funded through Hatch

The Initiative for Future Agriculture and Food Systems (IFAFS) Competitive Grants Program, which was funded in 2000 and 2001, required projects to integrate research, education, and extension activities. Fifteen IFAFS projects include objectives relevant to nutrient composition of food and/or to requirements and function of nutrients and other food components.

Key Outcomes

The results of research, education, extension and integrated projects expand the knowledge base about the composition of food. Practitioners, educators and college students gain knowledge about the levels, requirements and functions of nutrients and other bioactive components in food. Consumers gain knowledge about what constitutes a healthful diet from information on food composition and nutrient requirements on food labels, publications, computer software, Web pages, and other media outlets. For example, projects funded by the NRI have led to improved knowledge about the relationship of dietary zinc deficiency to development of prostate cancer, dietary requirements for vitamin B12 and folate, and dietary vitamin A requirements for mammalian embryo

- Based on the short term outcomes, policy makers develop recommendations for the general public. The expanded knowledge base about nutrient composition of food and requirements and function of nutrients and other food components is included in courses offered to students in the areas of nutrition and food science. Practitioners use the expanded knowledge base to make recommendations to and publications for their target audiences. Researchers use the expanded knowledge base to develop new food products that are good sources of nutrients and other bioactive compounds. For example, scientists funded by the NRI have found that grape pomace, a waste product from the wine industry, has high levels of polyphenols that inhibit the bacteria that cause dental caries. This research shows great promise for the development of novel dental care products (toothpaste, mouthwash) containing these compounds.

- Food producers, processors and retailers adapt the new food products developed by researchers to make them available to consumers. The quality of the U.S. food supply is improved, and consumers are able to make more healthful food choices, leading to improvement in the health of Americans. For example, a grant from the IFAFS Functional Foods program lead to the development of carrots with unusual pigments, containing carotenoids not normally found in carrots. Yellow carrots, which contain lutein are now found in commercially available frozen dinners, such as Lean Cuisine meals.

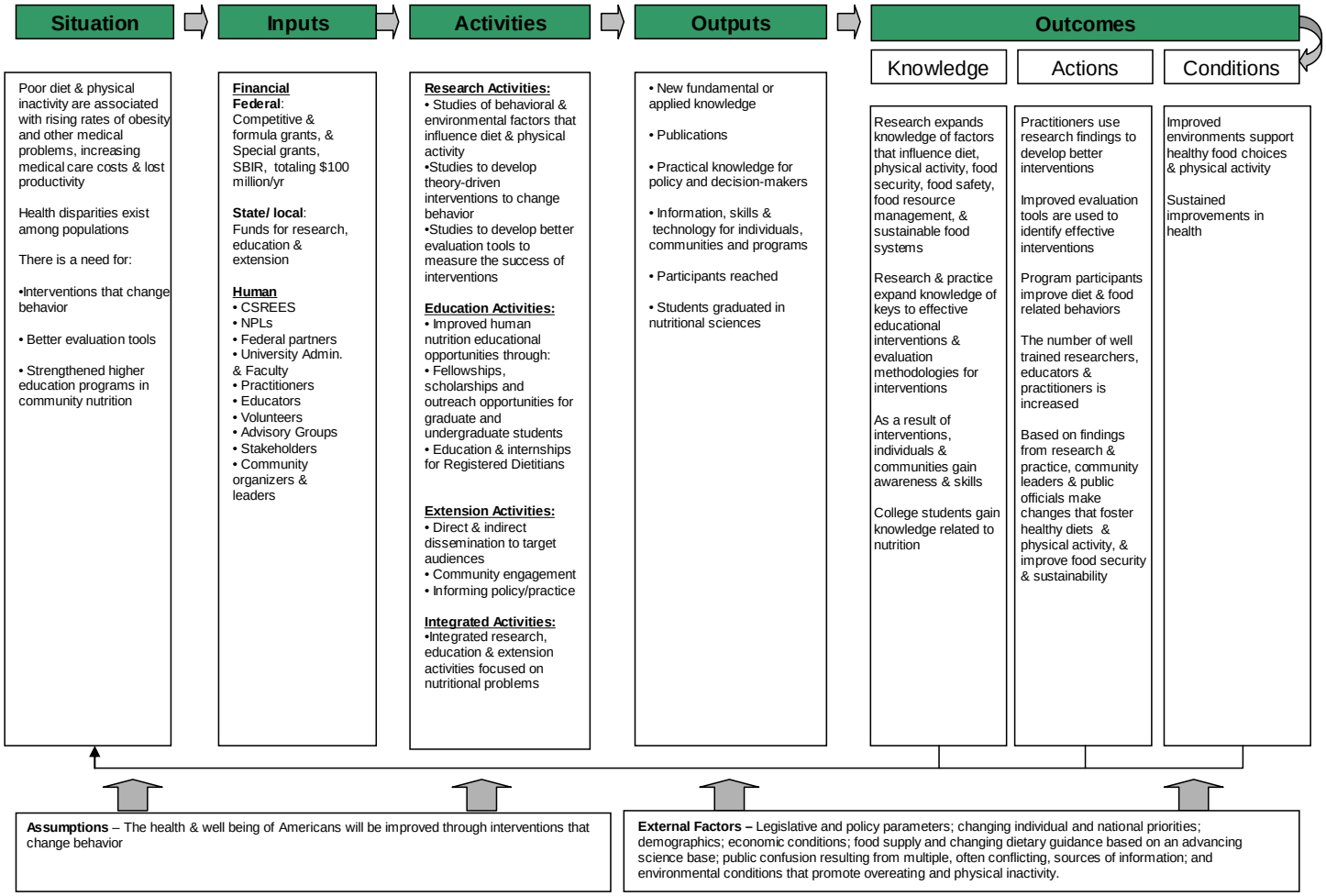
**Knowledge Area 703: Nutrition Education and Behavior and Knowledge Area 704: Nutrition and Hunger in the Population**

Introduction

The work conducted in this portfolio has a strongly integrated balance of nutrition education research and extension/outreach programs. Nutrition education research encompasses two broad themes –first, understanding the behavioral factors that influence choices related to food and physical activity; and second developing and evaluating intervention programs that help people and communities move from where they are to where they should be in terms of overall health and economic well being. Nutrition education and environmental intervention programs help increase knowledge and change behavior. These areas of nutrition are represented by Knowledge Area 703 "Nutrition education and behavior" and Knowledge Area 704 "Nutrition and hunger in the population."

## Logic Model

### KA 703 Nutrition Education and Behavior and KA 704 Nutrition and Hunger in the Population



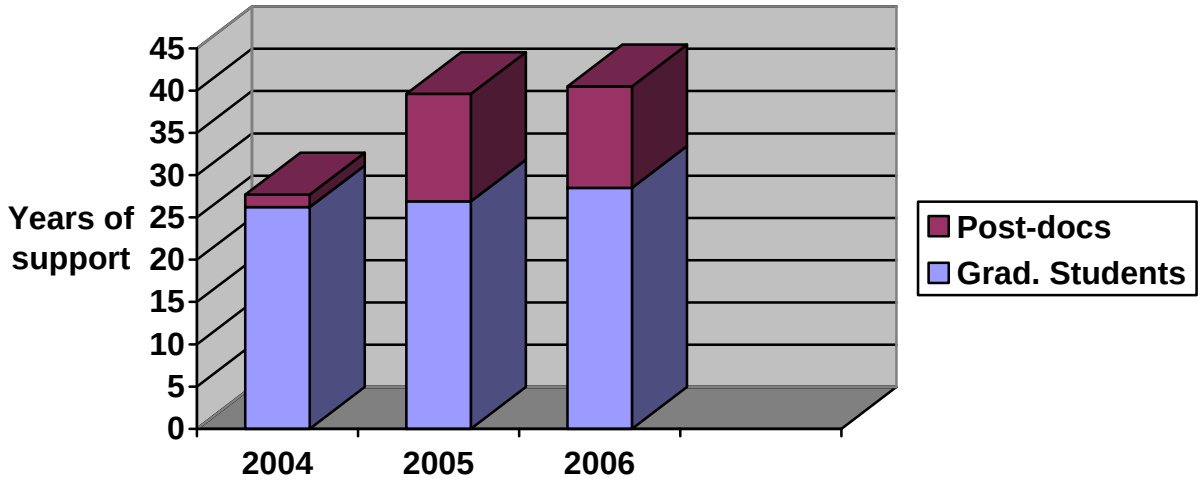
Key Outputs

- The NRI Competitive Grants Program in 2000 - 2003 supported nutrition education and behavioral research under subsection 31.0 "Human Nutrition and Health." Funding for educational and behavioral research under this subsection was stopped after 2003 when a separate subsection entitled "Human Nutrition and Obesity" was established to allow focus on educational and behavioral research related to obesity. The new subsection emphasizes integrated research, education and extension projects. Hatch formula funds are devoted to nutrition education research. Multistate Research Fund projects are five year projects supported by Hatch formula funds to the 1862 universities. Nutrition education research has been the focus of several of these projects. Several Congressionally earmarked projects also focus on nutrition education and behavioral research. Projects carried out in this emphasis area include (1) Studies of behavioral and environmental factors that influence diet and physical activity; (2) Studies to develop theory driven educational and environmental interventions to change behavior; and (3) Studies to develop sensitive evaluation tools to measure the progress of interventions.

- Probably more than in any other area of research, nutrition education research has a direct application to extension work. The results of research and integrated projects are presented to research and extension/outreach professionals through journals and presentations at professional meetings directed towards them. The professional associations with which nutrition education researchers and practitioners interact most are American Dietetic Association (ADA), the American Society for Nutrition (ASN) and the Society for Nutrition Education (SNE). The International Society for Behavioral Nutrition and Physical Activity (ISBPA), the American Public Health Association (APHA) and the Institute for Food Technologist (IFT) also play an important part in knowledge dissemination. The annual meetings and journals of these organizations are a primary means of disseminating findings from CSREES supported research and integrated research, education and extension projects to other researchers, educators and practitioners. Each year, the Food and Nutrition Extension Educators (FNEE) subgroup within SNE holds an all day pre-conference and a business meeting at the SNE annual meeting. These sessions provide a direct, in person opportunity to bring Extension educators up to date on research findings and other activities of special interest to them. Community leaders and public officials also use research finding as a basis for policy changes designed to improve the health of Americans.

- Graduate and undergraduate education activities are covered in the Higher Education Portfolio. Graduate and some undergraduate work are supported by research and integrated projects. Between 2004 and 2006, research projects funded by the National Research Initiative "Human Nutrition and Obesity" program provided support for a total of 60 graduate students for a total of 82 person-years – an average of 1.4 years of support per student (see Figure 5). The program also supported 17 post-docs for a total of 26 person-years – an average of 1.5 years of support per post-doc.

**Figure 5: Support for Graduate Students and Postdoctoral Researchers provided by National Research Initiative Competitive Grants under Knowledge Area 703, Nutrition Education and Behavior, 2004-2006**




The grant writing process, the work and the presentation of results at professional meetings and in journals is a very important part of the students' education. In addition, CSREES staff holds two grant writing workshops each year at sites around the country. These workshops are open to anyone interested in learning more about effective grant writing and in developing a better understanding of the grant approval process. In addition, the new understanding and insights gained from research, extension and integrated projects expand the knowledge base for teaching the next generation of researchers, educators and practitioners.

- While integrated research, education and extension projects may be new to many areas of research, it is the norm in nutrition education. Because of the closeness of research in this area to the direct application of extension and education work, researchers, practitioners and educators tend to create informal teams. Therefore, the formal mechanisms for integration do not reflect the true extent of teamwork in nutrition education. The Multistate Research Fund process, which provides a structure for multistate, long term projects, has long been a mechanism for drawing researchers, educators, practitioners and graduate students together. In recent years, the Multistate Research Fund approval process has required that projects be integrated. A formal funding mechanism that required competitive grant applications to be integrated began with the Initiative for Future Agricultural and Food Systems (IFAFS) which was funded in 2000 and 2001. Almost all of the $15.6 million awarded in nutrition over these two years was targeted to obesity prevention. Starting in 2003, a section within the NRI was established for competitive, integrated grants focused on obesity prevention. This section has been funded at about $10 million per year.

Key Outcomes

CSREES efforts add significant value to the fight against obesity and other health related issues. Major efforts in fighting against obesity and increasing healthy lifestyles have been made through EFNEP activities, which are supported by CSREES's Smith Lever 3(d) funding.

- The findings from research, education, extension and integrated projects are disseminated by various means, such as teaching, trainings, publications, presentations, media reports and via the internet. The findings from nutrition education research expand knowledge of the factors that influence diet quality, nutrition practices, physical activity, food security, food safety, food shopping, food resource management, sustainable food systems and on the barriers to change. Nutrition education research and practice expand knowledge of the characteristics of effective educational interventions. Research sheds light on effective methods and measures for evaluating successful interventions. College students who benefit from high quality course work and experience gain knowledge related to community nutrition. An example of a key outcome related to knowledge gain is: As a result of participation in EFNEP (Smith Lever 3(d))
  - **69%** of youth **increased** knowledge of the essentials of human nutrition

- Based on the short term outcomes, educational interventions are developed by practitioners. Effective interventions are identified using newly developed evaluation strategies. Based on the training they receive, program participants improve their diets and diet related behaviors. Because of the high quality education they receive, the numbers of qualified researchers and practitioners are increased. Based on findings from research and practice, community leaders and policy makers introduce changes that foster healthy diets and physical activity, and improve food security and the sustainability. An example of a key outcome related to knowledge gain is: As a result of participation in EFNEP (Smith Lever 3(d)):
  - **88%** of adults **improved** their Nutrition Practices (NP),
  - **83%** of adults **bettered** their Food Resource Management (FRM) practices, and
  - **66%** of adults **improved** their Food Safety (FS) practices
  - **71%** of youth **now** eat a variety of foods
  - **63%** of youth **improved** practices in food preparation and food safety
  - **61%** of youth **increased** ability to select low-cost nutritious foods

- The health of Americans has improved resulting from improvements in diet quality and physical activity. An example of a key outcome related to knowledge gain is: As a result of participation in EFNEP (Smith Lever 3(d)):
  - **91.5%** of adults reported improved dietary intake, including an **increase** of about 1.4 servings per day of fruits and vegetables
  - At entry**, 19.7%** of adults reported consumption of at least 1/2 of the recommended servings for each food group at exit, after completing EFNEP, this percentage increased to **41.0%.**

## Section III: Secondary Knowledge Area

### Knowledge Area 724: Healthy Lifestyle

Healthy Lifestyles has many aspects that intersect with human nutrition, physical activity, and food choices. Knowledge Area 724, Healthy Lifestyles falls under CSREES Strategic Goal 3 "Support Increased Economic Opportunities and Improved Quality of Life in Rural America", Objective 3.2, "Provide research, education and extension to improve quality of life in rural America." CSREES has funded work for this KA that frequently involves population groups at risk, the factors that promote or hinder healthy lifestyles, research on the development of a theoretical basis for behavior related to healthy lifestyles, and education and extension activities to strengthen the reach of health programs. KA 724 focuses attention on the heath aspects of quality of life in rural America. In 2007, 13 projects (3-D and other grants) that addressed healthy lifestyles included human nutrition KAs or classifications. In each case, the targeted population lived in rural America and represented one of the underserved population groups to include aging Americans.

### Knowledge Area 801: Individual and Family Resource Management

Strong, healthy families are the foundation of American communities, and family well-being is a shared priority for all Americans. This knowledge area falls under CSREES Strategic Goal 3 "Support Increased Economic Opportunities and Improved Quality of Life in Rural America", Objective 3.2, "Provide research, education and extension to improve quality of life in rural America." and seeks to increase the understanding of family systems, family performance, and the overall well-being of families in society. This KA emphasizes an ecological or systems approach to human development and has many aspects that intersect with human nutrition as it relates to children, families and older adult lifecycle development and well-being. CSREES work in human development and family well-being provides a mission relevant understanding of the social, cognitive, emotional, and physical development of individuals and families over the human lifespan. In 2007, 13 projects (3-D and other grants) that addressed circumstances that impact the well-being of individuals, families and communities included human nutrition KAs or classifications.

### Knowledge Area 802: Human Development and Family Well-Being

Work on family and human development provides an understanding of the social, cognitive, emotional, and physical development of individuals and families over the human lifespan. The focus is on family and life cycle studies. Work in this area also provides a better understanding of family systems, family performance, and well-being. Knowledge Area 802, Human Development and Family Well-Being falls under CSREES Strategic Goal 3 "Support Increased Economic Opportunities and Improved Quality of Life in Rural America", Objective 3.2, "Provide research, education and extension to improve quality of life in rural America" This KA has many aspects that intersect with human nutrition as it relates to children, families and older adults lifecycle development and well-being. In 2007, 13 projects (3-D and other grants) that addressed circumstances

that impact the well-being of individuals, families and communities included human nutrition KAs or classifications.

**Knowledge Area 806: Youth Development**
Youth are our future. Work in this area includes programs and activities that promote positive youth development, including 4-H. These activities extend knowledge to youth and convey a sense of belonging, teach life skills, and provide opportunities for mastery, competence, and independence. This work also includes a focus on the social and emotional development of program participants. It is well recognized that habits formed in youth carry forward to adulthood. Fortunately the nutrition program places a strong value of youth involvement primarily in research and extension activities. For example, EFNEP has major involvement in youth. Knowledge Area 806, Youth Development falls under CSREES Strategic Goal 3 "Support Increased Economic Opportunities and Improved Quality of Life in Rural America", Objective 3.2, "Provide research, education and extension to improve quality of life in rural America"

**Knowledge Area 903: Communication, Education, and Information Delivery**
This area of work focuses on educational processes, needs, and methods to achieve educational goals. Work includes development, use, and assessment of communication, information delivery, and technology transfer methods and systems. Knowledge Area 903, Communication, Education and Information Delivery falls under Strategic Goal 2 "Enhance the Competiveness and Sustainability of Rural and Farm Economies" and strategic objective 2.2 "Provide research, education, and extension to increase the efficiency of agricultural production and marketing systems." There are cross walks with KAs, 701,702, 703 and 704 for communication, education, and information delivery related to human nutrition; and for KA 724 for education or information dissemination pertaining to healthy lifestyles. In 2007, 15 projects were funded with KA 903 that included nutrition KAs or classifications: 10 of these projects were SERD grants, two NRI grants, one is a 3D grant and one other grant.

## Section IV: External Panel Recommendations and Portfolio Responses

### Relevance

*1.1 Scope*
The panel recognizes the intrinsic dilemma and difficult tradeoffs that would be needed to achieve exceptional coverage in all areas implied by the portfolio's goals and objectives (scope) and achieving a highly focused approach that addresses critical issues, topics and critical needs (focus).

This portfolio reflects this unit's strength in addressing preventive health and well-being of individuals, families and communities. The food and nutrition needs of young children and their families and communities are targeted with EFNEP and other CES programs, community food projects and maternal and child health (MCH) programs.

2006 Recommendation
The panel recommends that food and nutrition needs of older adults be addressed with more emphasis within the unit's resource limitations. In addition, further efforts are needed to clarify relationships among base programs, initiatives, and targeted programs in the extension/outreach area. The panel recommends that the unit clarify these relationships in the context of optimal integration of research, education and extension, rather than categories based on separate funding lines such as EFNEP, Community Food Projects Programs, etc.

Portfolio Response in 2008

Research, education and Extension/outreach programs that are not specifically targeted to children, teens or young adults usually target all adults. Among formula grant research projects, 24 current projects in KA 702 and 19 projects in KA 703 include older people. Six current NRI competitively funded projects focus on all or older adults. One Multistate Research Fund project is also targeting older adults, "Improving Plant Food (Fruit, Vegetable and Whole Grain) Availability and Intake in Older Adults," and involves 18 researchers at 10 universities.

Funding provided through the Rural Health and Food Safety Education Program Grant in FY 2007, emphasized aspects of food, nutrition and physical activity as required by older adults in terms of rural health. Seven grants were awarded and each includes targeted programs in Extension. In addition to the programmatic efforts specific to KA 703, this program is well integrated with KA 724, Healthy Lifestyles; KA 802, Human Development and Family Well-being; and KA 805 Community Institutions, Health and Social Services which are discussed in the "Quality of Life in Rural Areas" Portfolio.

In addition, a commentary titled "USDA CSREES' Role in Boarding Support for a Healthy Nation" published in the Journal of Extension (46:1) emphasizes the health challenges faced by rural older Americans and discusses how CSREES' is strategically

directed and uniquely positioned to address many of these challenges through effective research, education, and Extension activities

In support of the recommendation for integration of research, education, and extension EFNEP has submitted a proposal to conduct a Multi-State Research project - NC_TEMP211: "EFNEP Related Research, Program Evaluation and Outreach". If funded, results of this research project may have implications for changes to programming and evaluation methodology delivered through the Cooperative Extension System.

In FY07 increases in EFNEP Federal appropriations and changes to legislation have allowed each 1890 institution to receive a minimum of $100,000 for programming. This has allowed EFNEP to increase the scope of its programming efforts to reach more low-income families and youth.

Portfolio Response in 2007

Research, education and Extension/outreach programs that are not specifically targeted to children, teens or young adults usually target all adults. Among formula funded research projects, nine current KA 702 and five KA 703 projects specifically target older people. There are nineteen current NRI competitively funded projects that focus on all or older adults. One Multistate Research Fund project which targets older adults, "Improving Plant Food (Fruit, Vegetable and Whole Grain) Availability and Intake in Older Adults," involves 18 researchers at 10 universities. Approximately 80 percent of the Cooperative Extension System provides various educational programs for the elderly. These programs include specified nutrition advice for a healthy lifestyle, sessions regarding finances, and lists of community resources for the elderly and their care givers. In addition to programmatic efforts specifically addressing nutritional aspects of aging, this work is well-integrated with KA 802, human development and family well-being. Efforts to address rural aging are approached in a holistic manner utilizing the strengths of other programs while targeting challenges unique to the rural lifestyle. The EFNEP is targeted to low income people in specified communities although most participants tend to be families with children and low income youth. There is increasing effort to integrate EFNEP into other Extension programming efforts. Recent increases in Federal appropriations has allowed 1890 involvement.

*1.2 Focus*

The panel rated the portfolio as highly focused. In general, this portfolio reflects an appropriate mix of efforts to address important needs (e.g., obesity emphasis in supported research and EFNEP). Overall, further benefits may be achieved by more extensive coordination as the unit strives to allocate its resources in a synergistic way that addresses important issues, topics and critical needs.

The panel noted that efforts to focus agency programs need to be balanced with the need to address broad issues with a comprehensive plan.

2006 Recommendation
Therefore, the unit is advised to continue to prioritize its efforts without jeopardizing its ability to be flexible and responsive to dynamic food, nutrition and health issues.

Portfolio Response in 2008
The obesity epidemic remains a serious concern and its prevention continues to be a major focus of the nutrition portfolio. Based on stakeholder input, the importance of physical activity has been highlighted in unit strategic planning and program efforts and the behavioral and environmental aspects of obesity in the NRI section on obesity. Currently 22 NRI projects include a physical activity component.

Portfolio Response in 2007
Because of the seriousness of the obesity epidemic, its multidisciplinary nature and the multifaceted strengths and expertise of the CSREES partners to address it, a major focus of the nutrition portfolio continues to be obesity prevention. Underlying the focus of obesity prevention is the recognition that weight maintenance and obesity prevention are the basis for a healthy lifestyle. Our emphasis uses an integrated, food systems approach and involves the Land-Grant university system, the communities they serve, and collaborative effects with Federal and private partners. Related efforts are responsive to obesity prevention through effective research and educational invention strategies but flexible enough to encompass overarching food, nutrition, and health issues to improve the nation's nutritional health.

*1.3 Contemporary and/or Emerging*
Many contemporary and emerging food and nutrition issues have been identified in this portfolio. In fact, there are over 30 statements of future direction in the portfolio.

2006 Recommendation
While the panel applauds CSREES' ambitious plans and efforts, it recommends that the future directions be prioritized to further enhance integration of research, education and extension activities. Additionally, the panel believes that renewed/strengthened energy and commitment are needed to enhance this unit's ability to adapt as issues emerge and continue to evolve.

Portfolio Response in 2008

Ongoing actions are in place to promote eXtension in support of the CSREES strategic goal "Improve the Nation's Nutrition and Health" and continue to evolve to address emerging topics in nutrition and health. Such actions will enhance the integration of food and nutrition research with education and extension activities targeted to the professional, paraprofessional and consumer in nutrition and health. During 2007, nutrition information for older Americans was incorporated as a key component of the eXtension Caregiving Community of Practice CoP.

In order to make sure EFNEP's evaluation methodologies are up-to-date and relevant to low-income audiences NC_TEMP211: "EFNEP Related Research, Program Evaluation

and Outreach" was submitted. It involves 15 states and the District of Columbia and addresses research questions associated with the success of EFNEP. It brings together the extension and research communities to work together towards validation of EFNEP's outcome measures.

In FY 2007, the NRI Bioactive Food Components for Optimal Health and Improving Food Quality and Value Program issued their first joint priority for integrated research, extension and/or education activities to develop a functional food to promote energy balance. The goal of this priority is to encourage collaboration between nutrition scientists and food scientists and to promote the integration of education and extension activities with research. This priority was added to the NRI in response to stakeholder input from Nutrition and Food Science Department Chairs' groups and from the American Society for Nutrition and Institute of Food Technologists. In FY 2007, the program received nine proposals submitted for this joint priority and made one award. The joint priority is being offered again in FY 2008.

Portfolio Response in 2007

Actions to enhance, support and integrate research, education and extension in support of the CSREES strategic goal to "Improve the Nation's Nutrition and Health" as well as the emerging issue of obesity prevention are crosscutting and multifaceted. They maintain the flexibility and responsiveness of this Portfolio in several significant ways:

- Capitalizing on the synergy gained by strengthening coordination among the various CSREES programs to focus on obesity has resulted in both the SBIR and the National Needs Fellowship Grants specifically citing obesity in recent RFAs. In 2006, the Fellowship Grant received about 10 percent of the eligible applications in the diet and obesity area with awards being made to three of these out of a total of 29 awards. In addition, through the Obesity Task Force, CSREES representatives and Land-Grant university partners come together to think strategically about obesity prevention and encourage obesity focus across programs.
- Working to integrate and coordinate efforts focused on the nation's health and obesity prevention has lead to the funding of three new integrated Multistate Research Funded projects: NC1028: "Promoting healthful eating to prevent excessive weight gain in young adults" which involves 11 states and W1005: "An integrated approach to prevention of obesity in high risk families" which involves 18 states and the District of Columbia; and NCDC211: "EFNEP Related research and outreach" which involves 15 states and the District of Columbia. In particular, the EFNEP project for the first time addresses research questions associated with the successful EFNEP and brings together the Extension and research communities to work together towards validation of EFNEP's outcome measures.
- Sponsoring research, education and extension projects through the National Research Initiatives on Bioactive Food Components and Human Obesity titles. For 2006, 118 proposals were submitted under Bioactive Food Components with 21 awarded; 82 proposals were submitted under Human Nutrition with 11 grants and 5 bridge grants awarded.

- Addressing broad issues within a comprehensive plan focused on obesity prevention is effectively done within the Land-Grant University System. For 2006-07, 126 human obesity research projects were identified in CRIS. These projects bring together multiple disciplines towards a better understanding of the behavioral and environmental factors as well as the strength of the CES to develop and evaluate effective interventions.

*1.4 Integration*
There has been a push for integrated projects at the federal level, especially within the NRI project priorities and AREERA, but that is not consistently reflected in this unit's structural and management functions, especially for formula fund programs that are managed mainly at the state/university level. The NRI and other research activities have provided evidence of supporting integrated projects.

2006 Recommendations
Further efforts to translate research findings to strengthen work in the education and extension mission areas are recommended. Integration of research, education and extension across all levels is critical to fulfilling accountability expectations for the unit. This unit is in a position to create synergy and multi-disciplinary balance, and the unit's emphasis on integration should continue to be emphasized.

Portfolio Response in 2008
CSREES continues to work with USDA and HHS in support of the 2010 Dietary Guidelines for Americans. CES faculty have been invited to participate in the evidence-based review of pertinent literature for the Dietary Guidelines Advisory Committee use. CES community outreach and educational experience using the Dietary Guidelines and MyPyramid uniquely position them to understand evidence-based research related to Dietary Guidelines development and implementation. In addition, CSREES has been actively involved with the HHS Physical Activity Guidelines Interest Group to bring the CES perspective to the implementation of the Physical Activity Guidelines for Americans in late 2008.

The assignment of National Program Leaders as state liaisons has allowed them to focus on the needs of a particular state and collect feedback from university leadership on the needs of the state overall and individual university in particular. As a reviewer of state plans of work and review plans, the NPL directly looks for and addresses as necessary the need for adequate stakeholder input for funding research and outreach plans per the CSREES mission and integration requirements.

Portfolio Response in 2007
CSREES requires annual Plans of Work and Progress Reports from land-grant universities which are reviewed by CSREES state liaisons. One of the review criteria is that there be evidence of adequate stakeholder input in the development of formula funded research and Extension/outreach plans. The competitively awarded NRI program uses various means of collecting stakeholder input including an open solicitation through the RFA development process and focused listserv requests and also formal reports such

as those on research needs from the Institute of Medicine and the Dietary Guidelines Advisory Committee.

CSREES is working with other USDA agencies in support of the Dietary Guidelines for American, 2010 revision. Strategies are being discussed as to roles and responsibilities among the various USDA agencies to support an evidence-based system approach. NPLs' research expertise as well as CES faulty and staff community outreach and educational experience using the Dietary Guidelines and MyPyramid uniquely position CSREES/CES to understand evidence-based research related to DG development and implementation.

*1.5 Multi-disciplinary Balance*
Historically, nutrition education research has tended to focus on individual behavior change, but programs function at the community and policy levels as well, and each of these components is critical for effective change. Practitioners can help inform researchers to strengthen and enhance the coordination of these functions. Multidisciplinary models, as reflected in the community nutrition education logic models, can be borrowed from public health and other partners (e.g., translational research emphasis of NIH) to accomplish this broader range of multidisciplinary research needs. This will help differentiate USDA's and CSREES's niche in the broad food/nutrition/health research arena and capitalize on this unit's linkages to the Land-Grant university system, the nationwide network of county and state Extension programs, and agency expertise that spans all aspects of the nation's food system.

<u>2006 Recommendation</u>
The Community Food Projects Program and NRI research projects have made significant progress in incorporating multidisciplinary priorities. Similarly, some education and extension programs have multidisciplinary components (e.g., food resource management, food security). Wherever possible, further multidisciplinary work should be encouraged throughout the unit.

<u>Portfolio Response in 2008</u>
Review panels appointed for the Human Nutrition and Obesity subsection of the NRI (31.5) are among the most multidisciplinary of all the NRI review panels. They reflect the multifaceted nature of the problem of obesity. The panelists and the ad hoc reviewers include research, extension and industry professionals with expertise in nutrition, human development, education, communication, food science, public health, medicine, economics and technology.

Ongoing efforts and development have continued with several of the Partnerships identified for 2007 to help focus on multidisciplinary priorities. The Interagency MOU for the Federal Public Health and Recreation Working Group continued to meet quarterly and produced a brochure for use by the working group agencies to promote outdoor recreation in children, "A Call to Activity: Getting Kids Moving in the Great Outdoors". In addition, an updated MOU has been completed for final signatures from respective Department secretaries. In 2007, The American On The Move (AOM)/ CSREES/CES

partnership was promoted throughout the Land-Grant University System. Thirteen universities/states have committed to the support of the partnership database developed by AOM and many other states use partnership educational resources. This partnership promotes health through walking programs and physical activity. It gives CES county staff the ability to collect and retrieve participant data for program assessment and evaluation.

Funding provided through the Rural Health and Food Safety Education Program Grant in FY 2007, emphasizes aspects of food, nutrition and physical activity as required by older adults in terms of rural health and incorporates multidisciplinary priorities. Seven grants were awarded and each includes targeted programs in Extension with programmatic efforts specific to KA 703, Nutrition Education and Behavior; KA 724, Healthy Lifestyles; KA 802, Human Development and Family Well-being; and KA 805 Community Institutions, Health and Social Services.

Community food projects (CFP) competitive program uses peer reviewers for applications. Peers unique to CFP include: Staff from non-profit organizations that represent minority (disadvantaged, low-income) communities, neighborhood gardeners, urban farmers, rural farmers, community development professionals, representatives from farm cooperatives, organic farmers, city planners, foundations, environmentalists, producers, food processers, local government officials

Portfolio Response in 2007

CSREES is collaborating with other agencies and organizations, both public and private to maximize financial resources and cross level expertise is an ongoing effort and offers the potential for promising and sustained outcomes related to the nutrition portfolio. CSREES is an active member of the Interagency Federal Collaborative on Research Efforts to Eliminate Health Disparities. Organized by CDC this is a unique effort to bring together Federal agencies to identify research and collaborative strategies to enhance efficiency and effectiveness in improving health outcomes. Currently, CSREES is involved with work related to developing a systems approach for addressing obesity and exploring opportunities for recognition within the Collaborative funding mechanism hosted by NIH. This Collaborative provides the potential for joint NIH/CSREES RFAs and PI meetings in the future.

CSREES has effectively sought and entered into Partnerships with both Federal and private partners to increase physical activity as a part of the obesity prevention focus. Many of these partners have mission areas or an emphasis that aligns with the CSREES strategic goal to improve national nutrition and health. Partnerships expand CSREES' area of influence in this regard and have the potential to leverage resources. Three partnerships are in place with: CDC's "Steps to a HealthierUS"; the Federal Public Health and Recreation Working Group; and "America on the Move" Foundation. The Interagency MOU for the Federal Public Health and Recreation Working Group includes a cross-sectional representation from various federal agencies with opportunities to leverage funds and resources to promote outdoor recreational research and education for healthy living. The MOU with the "America On The Move" has the potential to provide

CES staff at the state and local levels the ability to design and complete evaluation component for walking programs.

The Community Food Projects Program is another example of a multi-disciplinary program whose main thrust is solving problems that involve food access, food environment, economic and social justice and environmental stewardship. Applicants who successfully incorporate all aspects of community problem solutions typically are the awardees for this program.

**Quality**

*2.1 Significance of Findings*
NRI and other CSREES-sponsored research programs have yielded an impressive number of publications in a breadth of high-quality peer-reviewed journals.

2006 Recommendation
Specifically the list for Nutrition and Healthier Food Choices Portfolio (pages 98-101) along with the 2000-2004 publications from the EFNEP report (and pages 148-151 of the portfolio self-review document) provide evidence of significant findings that have been shared with professional colleagues.

Portfolio Response in 2008
Nutrition and Healthier Food Choices Portfolio continues to demonstrate significant findings. Although there is often a lag time after funding and publications, there have been a number of articles published in 2006-2007, that support the Nutrition and Healthier Food Choices Portfolio. Due to this lag time the portfolio team anticipates that the list of publications will evolve and be adjusted each year to reflect publications from previous years. The current list of publications is found in Appendix G.

Portfolio Response in 2007
Nutrition and Healthier Food Choices Portfolio continues to demonstrate significant findings. The Expanded Food and Nutrition Education Program (EFNEP) has a strong history of program success. Much of this relates to having a foundation in research. EFNEP Research Studies: 1989 – 2006 is an evolving document which sites significant research conducted on EFNEP over the years. Publications from 2006 include:

Montgomery, S. & Willis, W. Fiscal Year 2005 Impact and Review of the Expanded Food and Nutrition Education Program. May 2006.

Townsend, M., et al. Evaluation of a USDA Nutrition Education Program for Low-Income Youth. *Journal of Nutrition Education and Behavior*, 38(1):30-41, 2006.

Townsend, M., et al. Evaluating Food Stamp Nutrition Education: Process for Development and Validation of Evaluation Measures. *Journal of Nutrition Education and Behavior*, 38(1):18-24, 2006.

Townsend, M. Obesity in Low-Income Communities: Prevalence, Effects, a Place to Begin. *Journal of the American Dietetic Association*, 106(1):34-37, 2006.

Townsend, M., et al. Food Behavior Checklist Effectively Evaluates Nutrition Education. *California Agriculture*, 60(1):20-24, 2006.

The EFNEP Research Committee will be evaluating this document to ensure that all publications have been cited and that new publications continue to be added. This document is available at http://www.csrees.usda.gov/nea/food/efnep/pdf/research_studies.pdf.

*2.2 Stakeholder/Constituent Inputs*
The panel commends the unit for soliciting input from a variety of stakeholders and constituents. However, on the formula side, states give input that does not appear to be routinely used to set and adjust program directions. Additionally, the panel noted that although EFNEP is a highly effective program with a carefully structured reporting system, it lacks a systematic planning mechanism for responding to input from researchers and practitioners.

2006 Recommendation
The panel believes that more emphasis should be given to stakeholder suggestions, as this is important to maintaining quality and stakeholders' appreciation of their value in the overall partnership.

Portfolio Response in 2008
CSREES requires annual Plans of Work and Progress Reports from land-grant universities. These are reviewed by CSREES state liaisons. One of the review criteria is that there is evidence of adequate stakeholder input in the development of formula grant research and Extension/outreach plans. The competitively awarded NRI program uses various means of collecting stakeholder input. These include an open solicitation through the RFA development process, focused listserv requests and formal reports such as those on research needs from the Institute of Medicine and the Dietary Guidelines Advisory Committee. As a result in the most recent RFA related to obesity prevention efforts, emphasis was placed on family relationships as a factor affecting obesity. Copies of stakeholder input provided to CSREES for competitive programs in the areas of food, nutrition and health can be found at: http://www.csrees.usda.gov/business/reporting/stakeholder/fo_stakeholder.html.

For EFNEP, the 1890 EFNEP Planning Team presented a training opportunity to the 1890 institutions on the administration of EFNEP funds. This was in response to a need identified by the 1890 institutions. The committee also conducted an Environmental Scan of all institutions in states with both an 1862 and an 1890 university to identify barriers to programming and other needs.

For the liaison role with FSNE, the ECOP FSNE Planning Team and the FSNE Program Development Team both provide opportunities for input and strategic planning from various levels of administration and program leadership in the Land-Grant University System. ECOP FSNE Planning Team members were appointed specifically to enhance the performance and impact of FSNE; increase the visibility of the role of Cooperative Extension; examine how the Land-Grant System is supporting low-income nutrition efforts and work to eliminate duplication of efforts where appropriate.

Stakeholders contributed to the development and pilot phases of the CNE Logic Model online reporting system. States can input multi-year data and use this system to prepare various reports.

Portfolio Response in 2007

Stakeholders are in a unique position to inform CSREES of their needs and interests and CSREES has made painstaking efforts to develop mechanisms for soliciting and implementing input. For example, CSREES obtains input from state partners through the NPL liaisons program, through teleconferencing and during national nutrition conferences. Stakeholder information is utilized in planning and implementing CSREES sponsored conferences, planning innovative programs, as well as, feedback at the termination of a program. This effort helps ensure that stakeholders appreciate their value in the partnership.

On the formula side, EFNEP routinely solicits stakeholder input. One example of this is the use of advisory committees. In FY06 EFNEP released the county component of the new Nutrition Education Evaluation and reporting System version 5 (NEERS5). This software used to manage and evaluate programming efforts. Several advisory committees were formed to assess the needs of the users, review the software and revise the output reports. These committees are comprised of EFNEP coordinators and staff from across the United States who work together and with the National Office to make informed recommendations and decisions. The direct results of their input continue to be evidenced in the updates to the NEERS5 software as well as the EFNEP website. This collaborative effort provides concrete evidence of the benefits of working with stakeholders and program participants. Additionally, with the inclusion of the 1890 institutions to the EFNEP program there was a need expressed for additional guidance. The 1890 EFNEP Planning Committee was formed with membership from CSREES, 1890 and 1862 Land-Grant Universities to provide support for these institutions as well as a mechanism for the system to work together to support each other.

The Community Food Projects Program has established a funding stream for small planning grants based on stakeholder input. This encourages small grants to begin planning, assessment and forming collaborations in the new communities.

Land-Grant universities have written and submitted a proposal for a 5 year multi-state project for EFNEP. During this time a group of EFNEP professionals will work together with researchers and other practitioners to review program methodologies. Their work is

expected to inform the National office as well as bridge the gap between extension, research and education.

CSREES requires annual Plans of Work and Progress Reports from land-grant universities which are reviewed by CSREES state liaisons. One of the review criteria is that there be evidence of adequate stakeholder input in the development of formula funded research and Extension/outreach plans. The competitively awarded NRI program uses various means of collecting stakeholder input including an open solicitation through the RFA development process and focused listserv requests and also formal reports such as those on research needs from the Institute of Medicine and the Dietary Guidelines Advisory Committee. As a result in the most recent RFA related to obesity prevention efforts, emphasis was placed on family relationships as a factor affecting obesity. Copies of stakeholder input provided to CSREES for competitive programs in the areas of food, nutrition and health can be found at: http://www.csrees.usda.gov/business/reporting/stakeholder/fo_stakeholder.html.

*2.3 Alignment with Current State of Science*
The agency has invested significant resources and made a concerted effort to adjust educational materials and messages to be consistent with the Dietary Guidelines for Americans, the current and appropriate basis for educational messages according to Federal policy.

*2.4 Appropriate and/or Cutting Edge Methodology*
The panel noted evidence showing that appropriate methodology is routinely applied. For example, NRI research grant proposals are selected according to criteria including novelty, innovation, uniqueness, and originality. The panel is pleased to note that EFNEP's reporting system is being updated to reflect current research in behavior and impact measurement. The agency's work to develop logic models has been recognized by GAO and other experts as an appropriate methodology. This unit appears to be ahead of other units in utilizing this planning and reporting tool. The comprehensive CNE logic model and this portfolio's Strategic Goal logic model provide a well-developed foundation for development of a coordinated set of nested logic models that can clarify each program's role in achieving the unit's overall food and nutrition goals.

**Performance**

*3.1 Portfolio Productivity*
Overall portfolio productivity was difficult to assess given that this portfolio reflects a variable mix of effectiveness in terms of CSREES staff efforts in providing services through funding, directing, managing and partnering with its various stakeholders. For example, the diabetes and obesity CES projects/initiatives reflected contributions that stemmed mainly from work in states (CA and WA) with weaker evidence of leadership or significant contributions from this unit. On the other hand, this unit's contributions to the documented outcomes of research activities are well supported in the portfolio. Because of this variability among programs, the panel rated the overall portfolio as moderately productive.

*3.2 Portfolio Comprehensiveness*
The panel's ability to judge evidence of outcomes related to the portfolio's goals is limited because the agency appears to be responsible for activities (e.g., formula funded programs and FSNE) conducted with funds that they administer but often are managed by a system that is beyond their immediate control. Additionally the reporting system has limited potential to consistently capture and aggregate output/outcomes data.
The agency is making efforts to utilize a consistent system based on logic models and the panel strongly supports these efforts but would like to see CSREES take the next step. The current models were developed retrospectively and it was difficult to determine how the individual models fit together.

2006 Recommendation
The panel encourages the development of a comprehensive logic model for the unit so that programmatic logic models can be developed in support of and nested within the larger logic model.

Portfolio Response in 2008
The Community Nutrition Education (CNE) Logic Model online program management and reporting system has been further developed and tested so that it can be used to receive data for multi-years. It has been used by states for specific reporting needs and is available for future state reports. Its potential for fitting within a more comprehensive logic model can now be explored.

Continued strides have been made agency wide to improve the current reporting systems. One such example is the Executive Dashboard which has the potential to improve monitoring by National Program Leaders of research, education and extension programs within their area of subject matter expertise. Continued changes to the Dashboard program is expected to provide improved monitoring capabilities.

Portfolio Response in 2007
The panel identified the Community Nutrition Education (CNE) Logic Model and Portfolio Logic Model as a "well-developed foundation" for establishing a coordinated set of nested logic models that can clarify program roles in achieving unit goals. Building upon this foundation, Version 2 of the CNE Logic Model has been pilot-tested with FSNE and other nutrition education programs. This model, which was developed by researchers, program managers, and evaluation specialists under CSREES leadership, was cited in a recently published college text, as an example of designing evaluation for theory-based nutrition education. (Isobel R. Contento, Nutrition Education, Linking Research, Theory, and Practice, Jones and Bartlett Publishers, Inc., 2007; pp. 366-367). An online program planning and reporting system, developed in conjunction with the CNE Logic Model, was used to collect fiscal year 2005 data from university-based Food Stamp Nutrition Education (FSNE) programs and networks. Further development of this online system for other nutrition programs is underway.

Other actions to inform the development of a comprehensive unit model include the review of accomplishment reports from universities by National Program Leaders and Office of Planning and Accountability staff and preliminary discussion as to how existing program management and reporting systems can be realigned using a more comprehensive and holistic approach. Lessons learned in working with the recently formed North Central Development Committee (NCDC) 211, that is developing a multi-state research proposal on "EFNEP Related Research and Outreach" will inform integration of research and program elements of the unit model.

*3.3 Portfolio Timeliness*
CSREES competitive grants are administered with a process (CRIS reports) that encourages timely completion of projects. CES and other formula-funded projects are ongoing and less amenable to completion-oriented reports that would provide strong evidence related to this indicator of productivity.

2006 Recommendations
The panel recommends that CSREES continue to work with its partners and key stakeholders in improving its ability to collect important outcomes data via a system that respects local differences in needs and resources.

Portfolio Response in 2008
Even though CES projects are more difficult to track, formula grant projects which have an Extension/education component or emphasis are included in CRIS. Each institution which receives EFNEP Formula Grant funding is required to submit data through the Nutrition Education Evaluation and Reporting System (NEERS) annually by a specific deadline. This data is reviewed by National staff and compared to previous year's data. Timely feedback and suggestions are sent to the institution. Tier data is also sent to the institutions so that institutions can see how their results compare to institutions with similar funding levels. Results may also be used to support program management decisions.

To improve the ability to collect a variety of data in a timely manner from a number of different project funding mechanisms related to the Nutrition Portfolio such as NRI, Multistate, EFNEP, and other Formula Grants, CSREES nutrition staff have been responsive to CSREES' One Solution team's requests for input. One Solution seeks to address the shortcomings of the existing reporting environment through an integrated approach that ties together reporting systems and processes across all CSREES programs. It will fulfill three major goals:

- Simplify reporting and reduce burdens for grantees;
- Improve the quality of accountability data and better equip the agency to meet increasing performance and budget reporting expectations; and
- Reduce effort required to complete reporting-related processes, allowing staff members to focus on program leadership and active, portfolio-based management.

Portfolio Response in 2007

CSREES continues to use the Current Research Information System, CRIS, to track progress of projects and assure that activities and accomplishments proceed according to proposed and approved timeframes. Additionally, an annual extensive review of all projects with a potential nutrition emphasis is completed by a NPL in human nutrition as to timeliness and focus. Obesity prevention related projects are flagged and further coded for specifics to biochemical, behavioral and food science research related to obesity. Attention to Extension education activities as a component of this research is coded as well. Even though CES projects are more difficult to track, formula-funded projects which have an Extension/education component or emphasis are included in CRIS in this way. Also, NPLs continue to monitor State Plans of Work and Annual Plans to determine the timely submission of reported outcomes. This state-Federal feedback system is used to make adjustments as needed to keep nutrition and related projects/activities progressing in a timely manner.

CSREES NPLs and staff frequently communicate with partners and key stakeholders via phone and in person on the importance of timely reporting of outcomes data. To encourage such reporting NPLs may include under “Selected Results and Impacts” a statement about a particular project on a Nutrition and Health related CSREES web page (i.e. Health; Obesity and Healthy Weight). This also provides a venue for sharing information to wider and more diverse audiences.

To improve the ability to collect a variety of data from a number of different project funding mechanisms (NRI, Multistate, EFNEP, Formula funds) related to the Nutrition Portfolio in a timely manner, CSREES nutrition staff have been responsive to CSRESS “One Solution” requests for input and feedback as this project’s development moves forward.

Stakeholders are in a unique position to inform CSREES of their needs and interests and CSREES has made painstaking efforts to develop mechanisms for soliciting and implementing input. This effort helps ensure that stakeholders appreciate their value in the partnership. Additionally CSREES is in a position to be a conduit of current research information. CSREES works closely with other agencies, organizations and the Land-Grant Universities and provides a mechanism to distributes information to stakeholders and partners. Listservs provide an excellent means for systematic distribution of materials.

*3.4 Agency Guidance*

The panel focused on leadership within the unit to develop a score and recommendations related to this performance dimension. The panel observed strong evidence of leadership within the CSREES Families, 4H and Nutrition unit. Given constraints in financial and other resources, the guidance from unit leaders has been strong in providing guidance and directing the unit’s activities related to the goals of this portfolio.

2006 Recommendations

The panel recommends that the unit examine options to strengthen its emphasis on integration. For example, a nutrition team leader could be identified for each mission area (R, E and E) and that person could take the lead in coordinating communication within the unit and with its major partners.

The panel recognizes that its relatively new partnership arrangement with Baylor is an innovative and potentially productive way of coordinating expertise and communication on MCH, an important topic area for CSREES and this unit. The panel recommends that this unit assess the effectiveness of this model to determine its potential application in other topic areas such as nutrition and aging.

Portfolio Response in 2008

The decision to realign national program leader responsibilities for EFNEP at CSREES, to more broadly address the area of nutrition education for low-income populations, followed considerable input from Land-Grant University partners. With this change, CSREES and Land-Grant University partners are exploring a shared federal/state leadership model. A short-term Food Stamp Nutrition Education (FSNE) planning team was appointed by Extension Committee on Organization and Policy (ECOP) specifically to increase the visibility of the role of Cooperative Extension; examine how the Land-Grant System is supporting low-income nutrition efforts, to eliminate duplication of efforts and to enhance the performance and impact of low-income nutrition education programming. Recommendations from the planning team, which were approved by ECOP in November 2007, were to:

1) Enhance communication among the CSREES, the universities, and other partners;
2) Support staff and program development; and
3) Strengthen the research-program interface.
4) Approved the formation of a state-based, but nationally representative, FSNE administrative office which is located at South Dakota State University.

Portfolio Response in 2007

Since the external review of the nutrition portfolio, there has been a change in the administrative team of Families, 4-H, and Nutrition. Dr. Cynthia Tuttle now serves as the Director of Nutrition and Family Sciences, one of the two groups within Families, 4-H, and Nutrition. During spring 2007 much emphasis was placed on planning for integration within the unit and discussing current and future staffing needs directions. This emphasis is being continued in 2008 as we look forward to the outcome of the 2007 Farm Bill deliberations and to determine their impact on CSREES and the Extension system. Since 70 percent of the nutrition portfolio team are part of Families, 4-H, and Nutrition unit, much of the planning and decision-making that occurs has implications for the nutrition portfolio. At this time, the panel recommendation that there be a nutrition team leader for each mission area is not under active consideration due to staff capacity limitations. Instead there is an increased emphasis on strengthening and enhancing the linkages of the three areas within project or programs to maximize financial resources.

Although the partnership arrangement with the Baylor College of Medicine, the Agricultural Research Service and the Children's Nutrition Research Center has provided benefits to all constituents and has encouraged the cross-fertilization of research ideas and extension outreach, no formal evaluation has been executed.

*3.5 Portfolio Accountability*
A nationwide review of CES proposals for FSNE and several site visits were conducted recently to provide feedback and follow-up training to improve quality of plans and reports.

2006 Recommendations
The panel recommends that members of this unit continue and expand their efforts to review state plans and reports for nutrition-related activities, beginning with the 2005 annual reports.

This report has limited information on the outcomes of formula-funded activities. If the challenging charge of collecting and reporting aggregated data on these important activities and communicating their value to partners and stakeholders, it will strengthen the basis of future congressional support. If CSREES cannot more effectively capture evidence of impact of formula funds, there is a risk that resources will be redirected to competitive funding. This would result in permanent and severe loss of valuable infrastructure for delivering quality programs and coordinating long-term relationships.

Portfolio Response in 2008
Improved strategies were developed in 2007 to better facilitate collection of data from the state annual reports by the Office of Planning and Accountability. The nutrition portfolio team reviewed the summary document and, as appropriate, obtained targeted information from states. Members of the portfolio team serve as NPL State Liaisons to nine states (Arizona, Colorado, Nevada, Minnesota, Ohio, Delaware, New Jersey, Tennessee, West Virginia) which provide opportunities for in-depth analysis of programming efforts and challenges

EFNEP is a Formula Grant program from which many outcomes can be reported. Outcome and impact data submitted annually through the Nutrition Education Evaluation and Reporting System (NEERS) is used to create impact reports, to report to partners and stakeholders, and to respond to congressional questions. It is also used to justify the need for continued and increased funding for EFNEP. EFNEP Impact reports can be viewed at http://www.csrees.usda.gov/nea/food/efnep/impacts.html.

Portfolio Response in 2007
CSREES requires annual Plans of Work and Progress Reports from land-grant universities which are reviewed by CSREES state liaisons. Members of the nutrition portfolio team serve as liaisons to eight states. Although continued efforts are being made to strengthen the accessibility of data collected by the states to specifically determine the

impact, at this time it is difficult to obtain all of the data suggested and outcomes and impact. It will be easier to aggregate statewide data in the future.

## Section V: Self-Assessment

**Portfolio Scoring**

| Criteria | | External Panel Score | Self Score | Self Score |
|---|---|---|---|---|
| Dimensions | Sub-dimensions | 2006 | 2007 | 2008 |
| 1. Relevance | 1.1 Scope | 2 | 2.5 | 2.5 |
| | 1.2 Focus | 3 | 3 | 3 |
| | 1.3 Emerging Issues | 3 | 3 | 3 |
| | 1.4 Integration | 2 | 2 | 2 |
| | 1.5 Multi-disciplinary | 2 | 2 | 2 |
| 2. Quality | 2.1 Significance of Findings | 3 | 3 | 3 |
| | 2.2 Stakeholder Assessment | 3 | 3 | 3 |
| | 2.3 Alignment with Current Science | 3 | 3 | 3 |
| | 2.4 Appropriate Methodology | 3 | 3 | 3 |
| 3. Performance | 3.1 Productivity | 2 | 2 | 2.5 |
| | 3.2 Completeness and Comprehensiveness | 2 | 2.5 | 2.5 |
| | 3.3 Timeliness | 3 | 3 | 3 |
| | 3.4 Guidance | 3 | 3 | 3 |
| | 3.5 Accountability | 2 | 2 | 2 |
| | ***Overall Score** | 86 | 90 | 91 |

* The overall score is based on weighted calculations

2008 Rational for Score Change:
The second internal annual review score for the Nutrition and Healthier Food Choices Portfolio was 91.2. This shows a slight increase from the first annual review score of 90 and is above the score of 86 provided by the external review team in spring 2006. The increase in the score is justified by statements made by the National Program Leaders as follows:

*Productivity*: increased from 2 to 2.5
*Rationale*: The internal review team felt that this past year was a year of increasing productivity in a variety of ways, specifically in terms of increased collaborative efforts and opportunities for involvement with underserved audiences. With no increase in funding and decreasing value of the dollar, it was necessary to plan for the future in creative programmatic ways. Specific examples are described on page 18. In addition, concrete examples of productivity are described as part of the portfolio outcomes on page 10. The list of publication, found in Appendix G is impressive and demonstrates that activities, interventions and research conducted within the purview of the Nutrition and

Healthier Food Choices Portfolio and recognized by others and shared throughout the nation.

2007 Rational for Score Change:
The first internal annual review score for the Nutrition and Healthier Food Choices Portfolio was 90. This compares to the score of 86 provided by the external review team in spring 2006. The increase in the score is justified by statements made by the National Program Leaders as follows:

*Scope*: increased from 2 to 2.5
*Rationale*: The internal review team felt that an increase from 2 to 2.5 was warranted due to the diligent efforts of all involved to address some of the specific issues noted by the external review team as well as the concentrated efforts made by those impacted by the 2006 nutrition portfolio to be cognizant of and relate to emerging trends. For example, one of the external review team's recommendations was to target older adults. Both older adults and adults of any age are the target of nineteen current NRI competitively funded projects. In addition there is one Multistate Research Funded project which specifically addresses older Americans. In addition there has been an increasing realization of the need to better integrate programs. EFNEP is an excellent example where this has been manifested.

*Comprehensiveness*: increased from 2 to 2.5
*Rationale*: The internal review team took special notice of the preliminary discussions towards a more comprehensive and holistic approach to programmatic efforts. Although the internal review team acknowledged that the final target has not yet been met, it felt that the significant efforts in the area of comprehensive programming should be acknowledged.

**Appendix A – External Panel Recommendations to the Agency**

In response to directives from the Office of Management and Budget (OMB) of the President, CSREES implemented the Portfolio Review Expert Panel (PREP) process to systematically review its progress in achieving its mission. Since this process began in 2003, fourteen expert review panels have been convened and each has published a report offering recommendations and guidance. These external reviews occur on a rolling five-year basis. In the four off years an internal panel is assembled to examine how well CSREES is addressing the expert panel's recommendations. These internal reports are crafted to specifically address the issues raised for a particular portfolio. Electronic versions of both external and internal reviews for all portfolios are located on the Agency's website (http://www.csrees.usda.gov/about/strat_plan_portfolio.html).

Even though the expert reports were all written independent of one another on portfolios comprised of very different subject matter, several themes common to the set of review reports have emerged. This set of issues has repeatedly been identified by expert panels and requires an agency-wide response. The agency has taken a series of steps to effectively respond to those overarching issues.

- **Issue 1: Getting Credit When Credit is Due**
  *For the most part panelists were complimentary when examples showing partnerships and leveraging of funds were used. However, panelists saw a strong need for CSREES to better assert itself and its name into the reporting process. Panelists believed that principal investigators who conduct the research, education and extension activities funded by CSREES often do not highlight the contributions made by CSREES. Multiple panel reports suggested CSREES better monitor reports of its funding and ensure that the agency is properly credited. Many panelists were unaware of the breadth of CSREES activities and believe their lack of knowledge is partly a result of CSREES not receiving credit in publications and other material made possible by CSREES funding.*

  **Issue 1: Agency Response:**
  To address the issue of lack of credit being given to CSREES for funded projects, the Agency implemented several efforts likely to improve this situation.

  First CSREES developed a standard paragraph about CSREES's work and funding that project managers can easily insert into documents, papers and other material funded in part or entirely by CSREES.

  Second, the Agency is in the process of implementing the "One Solution" concept. One Solution will allow for the better integration, reporting and publication of CSREES material on the web. In addition, the new Plan of Work (POW), centered by a logic model framework, became operational in June 2006. Because of the new POW requirements and the POW training conducted by the Office of Planning and Accountability (OPA), it will be simpler for state and local partners to line up the work they are doing with agency expenditures. This in turn

will make it easier for project managers to cite CSREES contributions when appropriate.

The Agency has started the process of upgrading the Current Research Information System (CRIS), once upgraded it will be named the CSREES Information System (CIS). The CIS will allow users to access information from the Plan of Work (POW) and new Standard Report in a more effective and efficient manner. In addition to the CIS, the new Annual Reporting system that is based on activities discussed in the POW was launched in 2008.

- **Issue 2: Partnership with Universities**
  *Panelists felt that the concept of partnership was not being adequately presented. Panelists saw a need for more detail to be made available. Panelists asked a number of questions revolving around long-term planning between the entities they also asked how the CSREES mission and goals were being supported through its partnership with universities and vice versa.*

  **Issue 2: Agency Response:**
  CSREES has taken several steps to strengthen its relationship with university partners. During the November 2005 National Association of State University and Land-Grant Colleges (NASULGC) meeting in Washington, D.C., Dr. Colien Hefferan announced a new cooperative program entitled the new NPL Institutional Liaison program. The primary goal of this program is to strengthen the relationship between CSREES and its state partners, thus enhancing the effectiveness of the work done by CSREES. Through teleconferences, campus visits, e-mails and other meeting opportunities; CSREES's knowledge and understanding of institutional interests and needs will increase. CSREES is committed to learning more about state research, extension and education activities, strategic plans, and goals.

  NPL Liaisons have the following duties:
  - Become knowledgeable about the administrative structure budget sources and major program commitments of your institution
  - Meet regularly with the CSREES deputy administrator liaison with your region
  - Make quarterly phone calls or teleconferences to appropriate university officials in order to create ongoing dialogue of shared interests and needs
  - Schedule campus visit/s in order to enhance the partnership
  - Serve as the joint reviewers of your integrated annual plans of work from cooperative extension and research
  - Identify partnership opportunities within CSREES and other federal agencies to strengthen your programs and assist in meeting your goals

  Finally, several trainings that focused on the POW were conducted by CSREES in geographic regions throughout the country. A major goal of this training was to

better communicate CSREES goals to state leaders which will facilitate better planning between the universities and CSREES.

- **Issue 3: National Program Leaders**
  *Without exception the portfolio review panels were complimentary of the work being done by NPLs. They believe NPLs have significant responsibility, are experts in the field and do a difficult job admirably. Panelists did however mention that often times there are gaps in the assignments given to NPLs. Those gaps leave holes in programmatic coverage.*

  **Issue 3: Agency Response:**
  CSREES values the substantive expertise that NPLs bring to the Agency and therefore requires all NPLs to be experts in their respective fields. Given the budget constraints often times faced by the agency, the agency has not always been able to fund needed positions and had to prioritize its hiring for open positions. In addition, because of the level of expertise CSREES requires of its NPLs, quick hires are not always possible. Often, CSREES is unable to meet the salary demands of those it wishes to hire. It is essential that position not only be filled but filled with the most qualified candidate.

  Operating under these constraints and given inevitable staff turnover, gaps will always remain. However, establishing and drawing together multidisciplinary teams required to complete the portfolio reviews has allowed the Agency to identify gaps in program knowledge and ensure that these needs are addressed in a timely fashion. To the extent that specific gaps are mentioned by the expert panels, the urgency to fill them is heightened.

- **Issue 4: Integration**
  *Lack of integration has been highlighted throughout the panel reviews. While review panelists certainly noted in their reports where they observed instances of integration, almost without fail panel reports sought more documentation in this regard.*

  **Issue 4: Agency Response:**
  Complex problems require creative and integrated approaches that cut across disciplines and knowledge areas. CSREES has recognized the need for these approaches and has undertaken steps to remedy this situation. CSREES has recently mandated that up to twenty-six percent of all NRI funds be put aside specifically for integrated projects. These projects cut across functions as well as disciplines and ensure that future Agency work will be better integrated. Integration is advanced through the portfolio process which requires cooperation across units and programmatic areas.

- **Issue 5: Extension**
  *While most panels seemed satisfied at the level of discussion that focused on research, the same does not hold true for extension. There was a call for more*

*detail and more outcome examples based upon extension activities. There was a consistent request for more detail regarding not just the activities undertaken by extension but documentation of specific results these activities achieved.*

**Issue 5: Agency Response:**

Conferences have been conducted to increase the awareness of improved methodologies and reporting systems for documenting outcomes and impacts for the Agency. A CSREES Planning and Evaluation Mini-Conference was held April 23-24, 2007 in conjunction with the Administrative Officers' Conference in Seattle, WA. This mini-conference was designed for those planning programs or engaged in performance measurement and program evaluation. Participants learned about Plan of Work reporting, what CSREES has learned from the 2007-2011 Plans submitted, and how CSREES has used and expects to use information from annual reports and plans.

In addition to the CSREES Planning and Evaluation Mini-Conference, CSREES, in partnership with Texas A&M University, started a bi-monthly CSREES Reporting Web Conference Series (RWC) in February 2008. This series originated from requests for more information on various topics identified at the 2007 CSREES Planning and Accountability Mini-Conference. Topics for the series include:

- Agricultural Research, Extension, and Education Reform Act (AREERA);
- Plans of Work (POW);
- Annual Reports;
- One Solution;
- CRIS (soon to become CSREES Information System (CIS)); and
- Outcome reporting.

The AREERA Plan of Work and Annual Reporting system (POW) made extension-based results and reporting a priority. The new POW includes program descriptions and progress reports limited to four legislatively prescribed lines of funding. POW includes descriptions and annual accomplishments for each subject program. POW is a database application containing a combination of structured data and unstructured text box fields. These reports provide state level documentation of extension outcomes and impacts not previously captured in Agency wide reporting systems. Approved state plans of work and annual reports will be available in the Research, Education, and Economics Information System (REEIS) in the fall of 2008.

- **Issue 6: Program Evaluation**
  *Panelists were complimentary in that they saw the creation of OPA and portfolio reviews as being the first steps towards more encompassing program evaluation work; however, they emphasized the need to see outcomes and often stated that the scores they gave were partially the result of their own personal experiences*

*rather than specific program outcomes documented in the portfolios. In other words, they know first hand that CSREES is having an impact but would like to see more systematic and comprehensive documentation of this impact in the reports.*

**Issue 6: Agency Response:**
The effective management of programs is at the heart of the work conducted at CSREES and program evaluation is an essential component of effective management. In 2003 the PREP process and subsequent internal reviews were implemented. Over the past four years 14 portfolios have been reviewed by expert panel members and continue to be self-assessed annually. Each year this process improves, including reconfiguration of several portfolios to become better structured for planning and assessment. NPLs are now familiar with the process and the staff of the Office of Planning and Accountability (OPA) has implemented a systematic process for pulling together the material required for these reports.

Simply managing the process more effectively is not sufficient for raising the level of program evaluations being done on CSREES funded projects to the highest standard. Good program evaluation is a process that requires constant attention by all stakeholders and the agency has focused on building the skill sets of stakeholders in the area of program evaluation. The OPA has conducted training in the area of evaluation for both NPLs and for staff working at Land-Grant universities. This training is available electronically and the OPA will be working with NPLs to deliver training to those in the field.

The OPA is working more closely with individual programs to ensure successful evaluations are developed, implemented and the data analyzed. Senior leadership at CSREES has begun to embrace program evaluation and over the coming years CSREES expects to see state leaders and project directors more effectively report on the outcomes of their programs as they begin to implement more rigorous program evaluation. The new POW system ensures data needed for good program evaluation will be available in the future.

The newly formatted annual review document has encouraged the discussion of program evaluations conducted regarding programs funded by the Agency for the particular portfolio being highlighted.

- **Issue 7: Logic Models**
*Panelists were consistently impressed with the logic models and the range of their potential applications. They expressed the desire to see the logic model process used by all projects funded by CSREES and hoped not only would NPLs continue to use them in their work but, also, that those conducting the research and implementing extension activities would begin to incorporate them into their work plans.*

**Issue 7: Agency Response:**
Logic models have become a staple of the work being done at CSREES and the Agency has been proactive in promoting the use of logic models to its state partners.

Two recent initiatives highlight this. First, in 2005, the POW reporting system into which states submit descriptions of their accomplishments was completely revamped. The new reporting system now closely matches the logic models being used in portfolio reports. Beginning in fiscal year 2007, states will be required to enter all of the following components of a standard logic model. These components include describing the following:

- Program Situation
- Program Assumption
- Program Long Term Goals
- Program Inputs which include both monetary and staffing
- Program Output which include such things as patents
- Short Term Outcome Goals
- Medium Term Outcome Goals
- Long Term Outcome Goals
- External Factors
- Target Audience

A series of training workshops were conducted by the OPA for staff from CSREES and from the Land-Grant partnership. OPA senior staff traveled to regional conferences attended by Project Directors and Principal Investigators funded by CSREES. They conducted workshops on budget and performance integration and logic models. These sessions helped our partners understand the full picture and emphasized the need for our partners to report their accomplishments. Senior staff presented the logic model as a conceptual as well as an application tool useful for planning and reporting. Partners have now begun to use logic model in their work as well as report their accomplishments. In fact the Competitive Program unit of the Agency has made the inclusion of logic models a requirement for Integrated Programs.

## Appendix B – CSREES Funding Table for Primary Knowledge Area

| CSREES Research Funding for KA 701: Nutrient Composition of Food (2002-2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Funding Sources** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **Hatch** | 615 | 641 | 481 | 430 | 383 | **2,550** |
| **McIntire-Stennis** | 0 | 3 | 4 | 4 | 0 | **11** |
| **Evans Allen** | 437 | 435 | 512 | 548 | 666 | **2,598** |
| **Animal Health** | 0 | 0 | 0 | 0 | 0 | **0** |
| **Special Grants** | 1,424 | 1,436 | 385 | 1,183 | 1,453 | **5,881** |
| **NRI Grants** | 31 | 59 | 209 | 81 | 999 | **1,379** |
| **SBIR Grants** | 0 | 0 | 80 | 0 | 71 | **151** |
| **Smith-Lever 3(b)and (c)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Smith-Lever 3(d)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **1890 Extension** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Higher Education** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Other CSREES** | 0 | 176 | 307 | 473 | 590 | **1,546** |
| **Total CSREES** | **2,507** | **2,750** | **1,978** | **2,719** | **4,162** | **14,116** |

Source: Current Research Information System
*n/a = Funding data are not available for that fiscal year

| CSREES Research Funding for KA 702: Requirements and Function of Nutrients and Other Food Components (2002-2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Funding Sources** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **Hatch** | 2,290 | 2,366 | 2,296 | 2,401 | 2,688 | **12,041** |
| **McIntire-Stennis** | 0 | 0 | 1 | 0 | 0 | **1** |
| **Evans Allen** | 456 | 991 | 1,013 | 1,030 | 802 | **4,292** |
| **Animal Health** | 0 | 1 | 9 | 10 | 2 | **22** |
| **Special Grants** | 1,323 | 1,438 | 2,651 | 2,248 | 2,169 | **9,829** |
| **NRI Grants** | 3,219 | 3,667 | 1,347 | 6,337 | 5,980 | **20,550** |
| **SBIR Grants** | 232 | 52 | 0 | 80 | 0 | **364** |
| **Smith-Lever 3(b)and (c)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Smith-Lever 3(d)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **1890 Extension** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Higher Education** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Other CSREES** | 276 | 0 | 0 | 871 | 612 | **1,759** |
| **Total CSREES** | **7,796** | **8,515** | **7,317** | **12,977** | **12,253** | **48,858** |

Source: Current Research Information System
*n/a = Funding data are not available for that fiscal year

| CSREES Research Funding for KA 703: Nutrition Education and Behavior (2002-2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Funding Sources** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **Hatch** | 1,112 | 1,006 | 1,166 | 1,183 | 1,022 | **5,489** |
| **McIntire-Stennis** | 0 | 0 | 0 | 0 | 0 | **0** |
| **Evans Allen** | 1,519 | 862 | 825 | 802 | 885 | **4,893** |
| **Animal Health** | 0 | 0 | 0 | 0 | 0 | **0** |
| **Special Grants** | 118 | 588 | 640 | 676 | 464 | **2,486** |
| **NRI Grants** | 1,016 | 869 | 7,746 | 6,214 | 8,086 | **23,931** |
| **SBIR Grants** | 0 | 0 | 160 | 592 | 0 | **752** |
| **Smith-Lever 3(b)and (c)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Smith-Lever 3(d)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **1890 Extension** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Higher Education** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Other CSREES** | 680 | 400 | 342 | 1,795 | 1,519 | **4,736** |
| **Total CSREES** | **4,445** | **3,725** | **10,879** | **11,262** | **11,976** | **42,287** |

Source: Current Research Information System
*n/a = Funding data are not available for that fiscal year

| CSREES Research Funding for KA 704: Nutrition and Hunger in the Population (2002-2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Funding Sources** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **Hatch** | n/a* | n/a* | n/a* | 18 | 18 | **36** |
| **McIntire-Stennis** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Evans Allen** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Animal Health** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Special Grants** | n/a* | n/a* | n/a* | 0 | 86 | **86** |
| **NRI Grants** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **SBIR Grants** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Smith-Lever 3(b)and (c)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Smith-Lever 3(d)** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **1890 Extension** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Higher Education** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Other CSREES** | n/a* | n/a* | n/a* | n/a* | n/a* | **0** |
| **Total CSREES** | n/a* | n/a* | n/a* | **18** | **43** | **61** |

Source: Current Research Information System
*n/a = Funding data are not available for that fiscal year

## Appendix C – All Known Funding Table for Primary Knowledge Areas

| Funding from All Sources for KA 701: Nutrient Composition of Food (FY 2002 - 2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Sources of funding** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **CSREES** | 2,506 | 2,752 | 1,978 | 2,718 | 4,162 | **14,116** |
| **Other USDA** | 128 | 520 | 345 | 1,290 | 76 | **2,359** |
| **Other Federal** | 478 | 805 | 1,170 | 1,951 | 717 | **5,121** |
| **State Appropriations** | 4,016 | 3,151 | 3,387 | 3,129 | 2,321 | **16,004** |
| **Private or Self Generated** | 195 | 123 | 166 | 402 | 214 | **1,100** |
| **Industry Grants and Agreements** | 1,046 | 910 | 949 | 1,155 | 860 | **4,920** |
| **Other non-federal** | 365 | 229 | 187 | 268 | 250 | **1,299** |
| **Grand Total** | **8,734** | **8,490** | **8,182** | **10,913** | **8,600** | **44,919** |
| **Percentage of CSREES Funding** | **29%** | **32%** | **24%** | **25%** | **48%** | **31%** |

Source: Current Research Information System

| Funding from All Sources for KA 702: Requirements and Function of Nutrients and Other Food Components (FY 2002 - 2006) | | | | | | |
|---|---|---|---|---|---|---|
| | ($ in the Thousands) | | | | | |
| **Sources of funding** | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **CSREES** | 7,796 | 8,516 | 7,317 | 12,977 | 12,251 | **48,857** |
| **Other USDA** | 1,945 | 1,043 | 2,581 | 2,392 | 2,038 | **9,999** |
| **Other Federal** | 11,916 | 11,613 | 15,675 | 24,067 | 19,783 | **83,054** |
| **State Appropriations** | 15,292 | 14,230 | 16,355 | 20,166 | 18,033 | **84,076** |
| **Private or Self Generated** | 531 | 550 | 524 | 1,432 | 1,324 | **4,361** |
| **Industry Grants and Agreements** | 5,149 | 6,588 | 8,631 | 9,713 | 9,075 | **39,156** |
| **Other non-federal** | 1,231 | 3,633 | 4,554 | 4,586 | 4,201 | **18,205** |
| **Grand Total** | **43,860** | **46,173** | **55,637** | **75,333** | **66,705** | **287,708** |
| **Percentage of CSREES Funding** | **18%** | **18%** | **13%** | **17%** | **18%** | **17%** |

Source: Current Research Information System

| Funding from All Sources for KA 703: Nutrition Education and Behavior (FY 2002 - 2006) | | | | | | |
|---|---|---|---|---|---|---|
| **Sources of funding** | **($ in the Thousands)** | | | | | |
| | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **CSREES*** | 4,445 | 3,726 | 10,879 | 11,262 | 11,975 | **42,287** |
| **Other USDA** | 480 | 823 | 476 | 441 | 358 | **2,578** |
| **Other Federal** | 1,570 | 1,700 | 2,158 | 3,573 | 2,151 | **11,152** |
| **State Appropriations** | 4,147 | 4,524 | 4,225 | 5,718 | 5,576 | **24,190** |
| **Private or Self Generated** | 392 | 296 | 166 | 747 | 373 | **1,974** |
| **Industry Grants and Agreements** | 623 | 697 | 1,009 | 1,503 | 1,044 | **4,876** |
| **Other non-federal** | 2,480 | 91 | 270 | 1,288 | 328 | **4,457** |
| **Grand Total** | **14,137** | **11,857** | **19,183** | **24,532** | **21,805** | **91,514** |
| **Percentage of CSREES Funding** | **31%** | **31%** | **57%** | **46%** | **55%** | **46%** |

Source: Current Research Information System
*EFNEP funding not included

| Funding from All Sources for KA 704: Nutrition and Hunger in the Population (FY 2002-2006) | | | | | | |
|---|---|---|---|---|---|---|
| **Sources of funding** | **($ in the Thousands)** | | | | | |
| | **FY 2002** | **FY 2003** | **FY 2004** | **FY 2005** | **FY 2006** | **Grand Total** |
| **CSREES** | n/a* | n/a* | n/a* | 18 | 148 | **166** |
| **Other USDA** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Other Federal** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **State Appropriations** | n/a* | n/a* | n/a* | 29 | 127 | **156** |
| **Private or Self Generated** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Industry Grants and Agreements** | n/a* | n/a* | n/a* | 0 | 0 | **0** |
| **Other non-federal** | n/a* | n/a* | n/a* | 0 | 2 | **2** |
| **Grand Total** | n/a* | n/a* | n/a* | **47** | **277** | **324** |
| **Percentage of CSREES Funding** | n/a* | n/a* | n/a* | **38%** | **53%** | **51%** |

Source: Current Research Information System
*n/a = Funding data are not available for that fiscal year

***Appendix D - List of Supporting Programs**

| Programs Related to Portfolio: Nutrition and Healthier Food Choices | |
|---|---|
| **Name of Related Program** | **Contribution to Portfolio** |
| Community Foods Projects Competitive Grant Program | The Community Food Projects Competitive Grant Program (CFPCGP) is a program to fight food insecurity through developing community food projects that help promote the self-sufficiency of low-income communities. Community Food Projects are designed to increase food security in communities by bringing the whole food system together to assess strengths, establish linkages, and create systems that improve the self-reliance of community members over their food needs. |
| Expanded Food and Nutrition Education Program (EFNEP) | An extension program providing nutrition education to limited income families and youth across the United States and in the 6 U.S. territories. http://www.csrees.usda.gov/nea/food/efnep/efnep.html |
| Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program | Grants are specifically intended to support fellowship programs that encourage outstanding students to pursue and complete their degrees or obtain postdoctoral training in areas where there is a national need for the development of scientific and professional expertise. Food science (specifically in food safety and foods for health) and human nutrition (specifically in obesity**,** diet and exercise) each represent one of the eight national need areas. http://www.csrees.usda.gov/nea/education/education_national_needs.html |
| Hatch and Evans Allen | Formula grants to 1862 and 1890 land-grant universities which support a broad array of research including integrated research leading to improved nutrition and healthier food choices. http://www.csrees.usda.gov/business/awards/formula/evansallen.html |
| NRI Section 31.0 Bioactive Food Components for Optimal Health | The primary objective of this program is to support research to improve our understanding of the role of foods and their biologically active components in promoting health. |

| | |
|---|---|
| | www.csrees.usda.gov/fo/bioactivefoodcomponentsnri.html |
| NRI Section 31.5 Human Nutrition and Obesity | Research and Integrated projects funded by this program are intended to lead to a better understanding of the behavioral and environmental factors that influence obesity and to the development and evaluation of effective interventions to prevent obesity. www.csrees.usda.gov/fo/humannutritionobesitynri.html |
| NRI Section 71.1 Improving Food quality and Value | Improving food quality and value is essential in meeting the needs of the consumer and enhancing competitiveness in global markets and is driven by the application of physical, chemical and biological principles. www.csrees.usda.gov/fo/foodqualityvaluenri.html |
| Rural Health and Safety Education Program | Focus on issues related to aging in one or more of three areas: 1) population aging in rural areas; 2) eldercare or care giving and its impact on rural and farm families; and/or 3) related issues of rural health care to provide older individuals and families with. www.csrees.usda.gov/fo/ruralhealthandsafetyeducation.cfm |
| Small Business Innovation Research: Food and Nutrition | This is one of 12 topic areas in the USDA SBIR program. Food Science and Nutrition projects develop novel and improved processes, technologies, or services that address food safety issues, that include novel rapid tests for the determination of food quality and safety parameters, detection methods of foodborne pathogens to reduce food contamination and foodborne illnesses; improved methods for the processing and packaging of food products and nutrition-related technologies and processes that will improve health. www.csrees.usda.gov/fo/foodsciencenutritionsbir.html |

* Additional information can be found in Appendix H

**Appendix E - Partnering Agencies and Other Organizations**

| Portfolio: Nutrition and Healthier Food Choices' Partnering Agencies and Organizations | |
|---|---|
| **Name of Program** | **Agency Type** |
| America On The Move Foundation | Non Federal Organization |
| American Community Gardening Association | Non Federal Organization |
| Appalachian Center of Economic Networks | Non Federal Organization |
| CDC/NCI Breast Cancer Prevention and Outreach (Team Up) | Non-USDA Federal Agency |
| Center for Nutrition Policy and Promotion | USDA Federal Agency |
| Community Food Security Coalition | Non Federal Organization |
| Farm to Table (marketing network in NM, UT, AZ and CO) | Non Federal Organization |
| Farm-To-School | Non Federal Organization |
| FDA Office of Women's Health | Non-USDA Federal Agency |
| Federal Public Health and Recreation Working Group (includes USDA) | USDA and non-USDA Federal Agency |
| First Nation's Institute | Non Federal Organization |
| Food and Nutrition Service | USDA Federal Agency |
| Growing Power (Urban Agriculture) | Non Federal Organization |
| HHS Steps to a Healthier US | Non-USDA Federal Agency |
| Institute for Washington's Future (Planning entity) | Non Federal Organization |
| Occidental College | Non Federal Organization |
| World Hunger Year | Non Federal Organization |
| Southern Sustainable Agriculture Working Group | Non Federal Organization |
| The Food Project (Youth centered urban Agriculture enterprise) | Non Federal Organization |

**Appendix F - Program Evaluations**

There are no current program evaluations targeting the Nutrition and Healthier Food Choices Portfolio to date.

**Appendix G - Nutrition and Healthier Food Choices 2007 Publications**

For CSREES Funded Projects, 2006-2007 Publications Include:

Adedze, P., Chapman-Novakofski, K., Witz, K., Orr, R., & Donovan, S. M. (2006). Knowledge, Attitudes and Beliefs about Nutrition and Childhood Overweight among WIC Participants. *Journal of Nutrition Education and Behavior*, *38*(4), S61.

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Camporeale, G., Zempleni, J., & Eissenburg, J. C. (2007). Susceptibility to heat stress and aberrant gene expression patterns in holocarboxylase synthetase-deficient Drosophila melanogaster are caused by decreased biotinylation of histones, not of carboxylases. *Nutr*, (197), p. 885-889.

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**Appendix H – Multistate Research Projects and Special Grants in Related to Nutrition and Healthier Food Choices (active in 2007)**

**Special Grants**

"Chemoprevention of GI tract Cancers with Berries" PI: Gary Stoner at The Ohio State University. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Childhood Obesity and Nutrition" PI: Jean Harvey-Berino at University of Vermont. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Diabetes Detection and Prevention" PI: Susan Butkus at Washington State University; Richard Jackson at Joslin Diabetes Center, Boston, MA. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Dietary and Genetic Risk Factors in Obesity and Diabetes" PI: Marcia McInerney at University of Toledo, Ohio. CSREES Contact- Shirley Gerrior. (202-7204124;sgerrior@csrees.usda.gov)

"Dietary Fat and Central Adiposity (The Metabolic Syndrome)" PI: George Bray at Louisiana State University Ag Center/ Pennington Biomedical Research Center. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Environmental Risk Factors/ Cancer" PI: Carol Devine at Cornell University. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Health Education Leadership" PI: Ann Vail at University of Kentucky. CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Nutrition Enhancement/ School Breakfast" PI: Laurie Boyce at University of Wisconsin-Extension.
CSREES Contact- Shirley Gerrior. (202-720 4124;sgerrior@csrees.usda.gov)

"Stable Isotope Metabolism and Human Nutritional Requirements" PI: Patrick Stover at Cornell. CSREES Contact- Etta Saltos. (202-401-5178; esaltos@csrees.usda.gov )

**Multistate Research Projects**

**W1005**: An Integrated Approach to Prevention of Obesity in High Risk Families. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**NE1008**: Assuring Fruit and Vegetable Product Quality and Safety Through the Handling and Marketing Chain**.** CSREES Contact- D. Rao Ramkishan (202-401-6010; rrao@csrees.usda.gov)

**W2122**: Beneficial and Adverse Effects of Natural, Bioactive Dietary Chemicals on Human Health and Food Safety. CSREES Contact- Etta Saltos (202-401-5178; esaltos@csrees.usda.gov )

**S1033**: Control of Food-Borne Pathogens in Pre- and Post-Harvest Environments. CSREES Contact- D. Rao Ramkishan (202-401-6010; rrao@csrees.usda.gov)

**NCDC211**: Development Committee for EFNEP Related Research and Outreach. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**NC1023**: Improvement of Thermal and Alternative Processes for Foods. CSREES Contact- Hongda Chen (202-401-6497; hchen@csrees.usda.gov )

**NE1023**: Improving Plant Food Availability and Intake in Older Adults. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**NC1033:** Local Food Choices, Eating Patterns and Population Health. CSREES Contact- Sally Maggard (202-720-0741; smaggard@csrees.usda.gov )

**NC1031**: Nanotechnology and Biosensors. CSREES Contact- Hongda Chen (202-401-6397; hchen@csrees.usda.gov )

**W1002**: Nutrient Bioavailability--Phytonutrients and Beyond. CSREES Contact- Etta Saltos (202-401-5178; esaltos@csrees.usda.gov )

**NC1167**: Omega-3 polyunsaturated fatty acids & human health & disease. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**W1003**: Parent and Household Influences on Calcium Intake among Preadolescents. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**NE1018**: Postharvest Biology of Fruit**.** CSREES Contact- D. Rao Ramkishan (202-401-6010; rrao@csrees.usda.gov)

**S294**: Postharvest Quality and Safety in Fresh-cut Vegetables and Fruits**.** CSREES Contact- D. Rao Ramkishan (202-401-6010; rrao@csrees.usda.gov)

**NC1028:** Promoting Healthful Eating to Prevent Excessive Weight Gain in Young Adults. CSREES Contact Susan Welsh (202-720-5544; swelsh@csrees.csrees.usda.gov )

**Special Grants in Nutrition Administered by CSREES *(Subject to approval)***

**Nutrition:**

"Stable Isotope Metabolism and Human Nutritional Requirements" PI: Patrick Stover at Cornell. CSREES Contact- Etta Saltos

"Food Product Development" PI: Roxie Rodgers Dinstel at University of Alaska, Fairbanks. CSREES Contact- Shirley Gerrior

"Food Preparation and Marketing" PI: Roxie Rodgers Dinstel at University of Alaska, Fairbanks. CSREES Contact- Shirley Gerrior

"Dietary Fat and Central Adiposity (The Metabolic Syndrome)" PI: George Bray at Louisiana State University Ag Center/ Pennington Biomedical Research Center. CSREES Contact- Shirley Gerrior

"Chemoprevention of GI tract Cancers with Berries" PI: Gary Stoner at The Ohio State University. CSREES Contact- Shirley Gerrior

"Rural Obesity in New York" PI: Kathleen Rasmussen at Cornell University. CSREES Contact- Shirley Gerrior

"Dietary and Genetic Risk Factors in Obesity and Diabetes" PI: Marcia McInerney at University of Toledo, Ohio. CSREES Contact- Shirley Gerrior

"Childhood Obesity and Nutrition" PI: Jean Harvey-Berino at University of Vermont. CSREES Contact- Shirley Gerrior

"Nutrition Enhancement/ School Breakfast" PI: Laurie Boyce at University of Wisconsin-Extension. CSREES Contact- Shirley Gerrior

"Diabetes Detection and Prevention" PI: Susan Butkus at Washington State University. CSREES Contact- Shirley Gerrior