Portfolio Annual Report 2009:
Nutrition and Healthier Food Choices

United States Department of Agriculture
National Institute of Food Agriculture

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Table of Contents

Executive Summary **5**
Section I: Portfolio Overview **8**
Portfolio Planning **8**
Portfolio Mission 8
Portfolio Vision 8
Portfolio Goals 8
Portfolio Introduction 8
Portfolio's Linkage to CSREES Strategic Plan 9
CSREES Strategic Plan Key Long-Term Outcomes 10
Portfolio Logic Model 12
Portfolio Inputs **13**
Portfolio Level Funding Table and Bar Chart 13
Portfolio Results **19**
Portfolio Outcomes 19
Portfolio Leadership and Management 20
Programmatic or Management Shortcomings 25
Key Future Activities and Changes in Direction 25
What are Others Doing 28
Section II: Primary Knowledge Areas **31**
Knowledge Area 701: Nutrient Composition of Food and Knowledge Area 702: Requirements and Function of Nutrients and Other Food Components 31
Knowledge Area 703: Nutrition Education and Behavior and Knowledge Area 704: Nutrition and Hunger in the Population 38
Section IV: Secondary Knowledge Area **46**
Knowledge Area 724: Healthy Lifestyle 46
Knowledge Area 801: Individual and Family Resource Management 49
Knowledge Area 802: Human Development and Family Well-Being 49
Knowledge Area 806: Youth Development 50
Knowledge Area 903: Communication, Education, and Information Delivery 50
Section V: External Panel Recommendations and Portfolio Responses **51**
Relevance 51
Quality 56
Performance 58
Section V: Self-Assessment **61**
Portfolio Scoring 61
Appendix A – External Panel Recommendations to the Agency **63**
Appendix B – CSREES Funding Table for Primary Knowledge Area **68**
Appendix C – All Known Funding Table for Primary Knowledge Areas **72**
Appendix D - List of Supporting Programs **75**
Appendix E - Partnering Agencies and Other Organizations **77**
Appendix F - Program Evaluations **78**
Appendix G – List of Stakeholder Groups Consulted **79**
Appendix H - Documentation of Previous Score Changes **80**
2008 Rational for Score Change 80
2007 Rational for Score Change 80

Appendix I - Nutrition and Healthier Food Choices Selected Publications 81
Appendix J – Multistate Research Projects and Special Grants in Related to Nutrition and Healthier Food Choices 102

Acknowledgements

- Etta Saltos, Ph.D., Team Leader

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- Nutrition Education and Behavior (KA 703): Susan Welsh, Ph.D., R.D.; Helen Chipman, Ph.D, R.D.; Stephanie Blake, M.A; Shirley Gerrior, Ph.D., R.D., L.D.
- Nutrition and Hunger in the Population (KA 704); Elizabeth Tuckermanty, Ph.D; Susan Welsh, Ph.D., R.D.
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Executive Summary

Situation Critical: Economic Woes, Obesity, Physical Inactivity, Changing Food Supply Challenge Nation's Health

Good nutrition is vital to the health and well being of the nation and is absolutely essential for the healthy growth and development of children and adolescents. Major causes of illness and death in the United States are related to poor diet and a lack of physical activity. Yet, according to the Centers for Disease Control and Prevention, in 2005-2006, an estimated 66 percent of U.S. adults were overweight or obese, along with 17 percent of children and adolescents. The total annual cost of obesity was an estimated $117 billion in 2000.

A recent survey by the International Food Information Council found that 85% of consumers agree that certain foods have health benefits that may reduce the risk of chronic disease or other health concerns. Yet, a mid-course review of *Healthy People 2010: Health Objectives of the Nation* found that progress has not been made in increasing the population's intake of fruit, vegetables, dairy and whole grain products , the very foods that are considered to provide the most health benefits. Intakes of sodium, total fat and saturated fat, which increase risk for chronic disease, have not decreased.

When food was scarce and energy needs for physical activity high, consumer demand was overshadowed by the limits of the food supply. Now the food supply is abundant and constantly changing – in 2006 over 20,000 new food products were introduced in the U.S. Yet in the midst of all this plenty, 11% of U.S. households had trouble putting food on the table in 2007, according to USDA's Economic Research Service. For some households, the time and resources required to plan, shop for, and prepare a meal is also an important consideration.

Levels of physical activity have decreased for most Americans due to changes in job requirements, personal habits and transportation. Some progress has been made in recent years in improving the proportion of the population that meets recommendations for participating in moderate or vigorous physical activity, but not enough to meet population goals. .

It is clear that Americans face many pressures when selecting and preparing their meals – time pressures, cost pressures, a myriad of choices in the marketplace and a lack of knowledge about what foods are healthy or how to prepare foods. Concerns about obesity and prevention of chronic disease will have a major influence on agriculture, food, health and community systems of the future.

NIFA Food and Nutrition Programs

The National Institute of Food and Agriculture (NIFA) manages a series of food, nutrition, and obesity prevention programs to help consumers face the challenges described above. NIFA programs bolster individual and community food security,

promote the development of new healthful food products, foster locally beneficial food systems, educate Americans on healthy food options, and endorse obesity prevention strategies to ensure a healthy population. NIFA works with its land-grant university partners on research, education, and extension projects in areas related to dietary requirements, nutrition education, obesity prevention and health promotion. These areas include: identifying nutritional needs; determining health benefits of food beyond their basic nutrient content; providing nutrition education; conducting behavioral research; and planning, conducting, and evaluating dietary interventions. NIFA and its partners in the Land-Grant University System, with their existing infrastructure and networks, are uniquely positioned to take advantage of the power of their three-part mission in research, education, and extension to bring a holistic approach to solving the multifaceted obesity problem. In addition, NIFA seeks public and private partnerships with others working with nutrition and health at the local, state and federal levels to address the nutrition and health needs of individuals, families and communities.

A healthy, well-nourished population depends on strong research and education programs in human nutrition. NIFA, in partnership with the Cooperative Extension System, delivers community-based nutrition education programs that help individuals, families, and communities make informed choices about food and lifestyles that support their physiological health, economic, and social well-being. The programs also provide policymakers with the knowledge to make appropriate policies for our citizens. NIFA sponsors nutrition-related research conducted through multistate projects and projects funded through the Hatch Act and the National Research Initiative.

Integration of Food and Nutrition Programs at NIFA

Figure 6 illustrates how the food, nutrition, and obesity programs at NIFA work in concert to integrate respective knowledge areas to promote healthier food choices and lifestyles and improve human health. NIFA integrates research results with education and extension programming to provide practical solutions to real-world problems. The food and nutrition portfolio consists of research, education, and outreach/extension programs that promote healthier food choices and lifestyles by incorporating current understanding of individuals' nutrient requirements and skills and motivation for change, along with the nutritional value of foods.

Strategies, performance measures, and performance criteria have been developed to achieve and measure success and to facilitate the next generation of researchers and practitioners in support of a healthier America.

Strategies

- Implement the *2005 Dietary Guidelines for Americans*
- Incorporate the most recent national dietary guidelines and science into program delivery
- Prepare the next generation of food and nutrition scientists, educators, and practitioners

- Improve quality and quantity of data available on dietary and nutritional status and physical fitness of the population.

Performance Measures

- Develop and use effective intervention methods and strategies to change behavior and improve diet and physical activity in target populations.
- Make research results available to update nutrition policy documents, such as Dietary Guidelines for Americans and Dietary Reference Intakes.

Performance Criteria

- Increase understanding of food insecurity, insufficiency, and hunger
- Promote activities to reduce food insecurity
- Determine factors that influence food intake and dietary patterns
- Explore the interrelationships between food-related behaviors and dietary patterns
- Increase understanding of functions and requirements of nutrients and other beneficial components in food

Improving the Nutrition and Health of All Americans

As a result of the programs selected for inclusion in this portfolio, as well as many programs not included, new information has been generated and new interventions developed to improve the nutrition and health of many infants, children, adolescents, adults and older adults. Projects funded by NIFA have resulted in new knowledge about the amounts of dietary protein, calcium and vitamin D needed to maintain bone health, about the link between household economic stress and childhood obesity and about parenting skills that can help prevent childhood obesity. EFNEP participants report increasing their intake of fruits and vegetables by almost 1 cup/day and improving their nutrition, food resource management and food safety practices. Native Alaskan students are being trained about nutrition and traditional foodways so that they can go back to their communities and develop obesity prevention extension programs there.

Epilogue

Based on the evidence presented in this portfolio, it has been demonstrated that the nutritional status and health of the population has improved as a result of research, education and extension programming provided by NIFA. Although there is much work yet to do, the Nutrition and Healthier Food Choices program is making progress toward improving the Nation's nutrition and health.

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 Goals:
1. Improve knowledge about the behavioral and psychosocial factors that influence obesity
2. Develop successful obesity prevention interventions
3. Demonstrate linkages between consumption of nutrients and other bioactive components found in food and human health
4. Develop interventions that include dietary guidance in community food programs

Portfolio Introduction
The Nutrition and Healthier Food Choices Portfolio supports NIFA' Strategic Goal 5 "Improve the Nation's Nutrition and Health". A majority of the actions of this portfolio fall under the NIFA emphasis area "Food, Nutrition and Health", one of the thirteen NIFA' targeted areas of emphasis. This portfolio also supports the HealthierUS initiative (http://www.healthierus.gov/), a national effort to improve people's lives, prevent and reduce the costs of disease, and promote community health and wellness. 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 diets 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 a driving force of the American food system. However, the population is also struggling with increasing demands on time, additional 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 2008. The portfolio includes four USDA/NIFA 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

***** *On October 1, 2009 Cooperative State Research, Education, and Extension Service (CSREES) became the National Institute of Food and Agriculture (NIFA). A strategic plan has not yet been developed for NIFA, so this portfolio discusses its support for the CSREES strategic plan.*

CSREES Supported Goal

This portfolio supports CSREES Strategic Goal 5, "Improve the Nation's Nutrition and Health." NIFA 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 in two ways: 1) by building capacity in the agricultural research and extension system to support change within the population and 2) by 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," NIFA 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," NIFA 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.

Table 1: 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

Table 2: 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%	96%
Fiscal Year 2008	93%	95%
Fiscal Year 2009	93%	
Fiscal Year 2010	93%	

Table 3: 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	4
Fiscal Year 2009	5	
Fiscal Year 2010	6	

Figure 1: Portfolio Logic Model

Situation	Inputs	Activities	Outputs	Outcomes		
				Knowledge	Actions	Conditions
Diet is associated with 4 of the 10 leading causes of death. - Need to expand scientific basis for dietary guidance through research on nutrient requirements & food consumption - Need to disseminate information to professionals & consumers - Need to determine motivators & barriers to improvement in nutrition & health - Need effective behavioral & environmental interventions - Need higher education programs that produce nutrition researchers, educators & practitioners that can address complex nutrition issues	**Financial** *Federal*: Competitive & formula grants, & Special grants, SBIR ***State/local***: Funds for research, education & extension **Human** - NIFA NPLs-Federal partners - University Admin. & Faculty - Practitioners - Educators - Volunteers - Advisory Groups - Stakeholders - Community organizers & leaders	**Research Activities:** - Nutrient function & requirements for different populations - Interrelationships among nutrients & food components - Factors that influence human behavior - Program development & evaluation **Education Activities:** Improved educational opportunities in nutrition through: Fellowships, scholarships & outreach opportunities for graduate & undergraduate students Education & internships for Registered Dietitians **Extension Activities:** - Direct & indirect information dissemination and educational delivery to target audiences - Inform policy - Support nutrition education practitioners - Outreach to health & education professionals **Integrated Activities:** Integrated research, education & extension activities focused on nutrition related issues	- New fundamental or applied knowledge - Publications - Practical knowledge for policy & decision-makers - Information, skills & technology for individuals, families, communities and programs - Participants reached - Students graduated in nutritional sciences	Generate & disseminate knowledge about: - Nutrient requirements and function - Food composition - Factors that influence diet, food security, food safety, food resource management, & sustainable food systems - Effective educational & environmental interventions - Expand nutrition knowledge & skills of target audiences Participants/learners report or demonstrate gains in knowledge and/or skills regarding the information above	Gains in knowledge & skills from research, education, extension & integrated activities are used to: - Develop new dietary recommendations - Develop new educational & environmental interventions to improve diet & physical activity - Test the effectiveness of interventions using newly developed evaluation tools - Inform policy to increase support for healthy lifestyles - Increase the number of well trained researchers, educators & practitioners - Motivate consumers to adopt healthy lifestyles	- Improved environment which supports healthy food choices & physical activity - Improve health, fitness, & well-being of the Nation

Assumptions: The health & well being of the Nation can be improved through needed research & targeted education & extension programs.	**External Factors:** Legislative and policy parameters; changing national priorities, demographics, economic conditions, food supply and changing dietary guidance based on an advancing science base. Public confusion resulting from multiple, often conflicting, sources of information. Environmental conditions that promote overeating & physical inactivity.

Portfolio Inputs

Portfolio Level Funding Table and Bar Chart

Table 4 displays Agency funding that is reported in the Current Research Information System, Plan of Work – Annual Report and in the Smith-Lever Act Authorization Letter and 1088. Education funding figures started to be reported in CRIS in FY 2003, which are included in the "Other NIFA" funding category.

Combined portfolio funding totaled $1.4 billion from FY 2004 through FY 2008, the majority of NIFA only funding came from EFNEP and the majority of funding overall came from the Supplemental Nutrition Assistance Program - Education (SNAP-Ed). Table 4 is a summary table of portfolio funding, which is supported by figures 2 – 5, which show portfolio level funding by funding source. Table 4 is also supported by KA level funding charts in Appendices B and C.

Table 4: Nutrition and Healthier Food Choices Portfolio Summary Funding Table
Combined Research and Extension Dollars in Actual Dollars
($ in the Thousands)

Funding Sources	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	Total
All CRIS Reported NIFA Funding	20,174	26,976	32,649	24,409	32,239	136,447
Smith-Lever 3(d): Expanded Food and Nutrition Program (EFNEP)	52,057	58,301	62,008	63,538	65,135	301,039
All Extension Funding Reported in POW	*NA*	*NA*	*NA*	15,049	16,802	31,851
Total NIFA Funding	*72,231*	*85,277*	*94,657*	*102,996*	*114,177*	*469,337*
Non-NIFA Funding – SNAP-Ed* (Land-Grant University Partner obligations)	115,691	100,664	110,031	125,086	141,500	592,972
Other non-NIFA Funding	62,826	64,029	68,851	70,535	76,307	342,548
Total Non-NIFA Funding	*178,517*	*164,693*	*178,882*	*195,621*	*217,807*	*935,520*
Total Funding	250,748	249,970	273,539	298,617	331,983	1,404,857

*The Food Stamp Program was renamed the Supplemental Nutrition Assistance Programs in the Food Conservation and Energy Act of 2008. As a result, Food Stamp Nutrition Education (FSNE), was renamed Supplemental Nutrition Assistance Program – Education (SNAP-Ed).

Table 5 shows portfolio level funding in constant dollars. These figures were configured to show changes in funding while controlling for inflation using the Consumer Price Index (CPI) calculator, which is located at http://data.bls.gov/cgi-bin/cpicalc.pl. For accurate calculations, the inflation calculator uses the average Consumer Price Index for a selected calendar year. This data represents changes in prices of all goods and services purchased for consumption by urban households. Table 5's figures were calculated using 2008 as the base comparative year.

Table 5: Nutrition and Healthier Food Choices Portfolio Summary Funding Table
Combined Research and Extension Dollars in Constant Dollars
Calculations are Based on 2008

($ in the Thousands)						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
All CRIS Reported NIFA Funding	22,994	29,739	34,868	25,346	32,239	145,186
Smith-Lever 3(d): Expanded Food and Nutrition Program (EFNEP)	59,333	64,272	66,223	65,978	65,135	320,941
All Extension Funding Reported in POW	*NA*	*NA*	*NA*	15,627	16,802	32,429
Total NIFA Funding	*82,327*	*94,011*	*101,091*	*106,950*	*114,177*	*498,556*
Non-NIFA Funding – SNAP-Ed* (Land-Grant University Partner obligations)	131,861	110,974	117,510	129,889	141,500	631,734
Other non-NIFA Funding	71,607	70,587	73,531	73,243	76,307	365,275
Total Non-NIFA Funding	*203,469*	*181,561*	*191,041*	*203,132*	*217,807*	*940,309*
Total Funding	285,796	275,572	292,132	310,082	331,983	1,495,565

NA - data isn't available

Figure 2

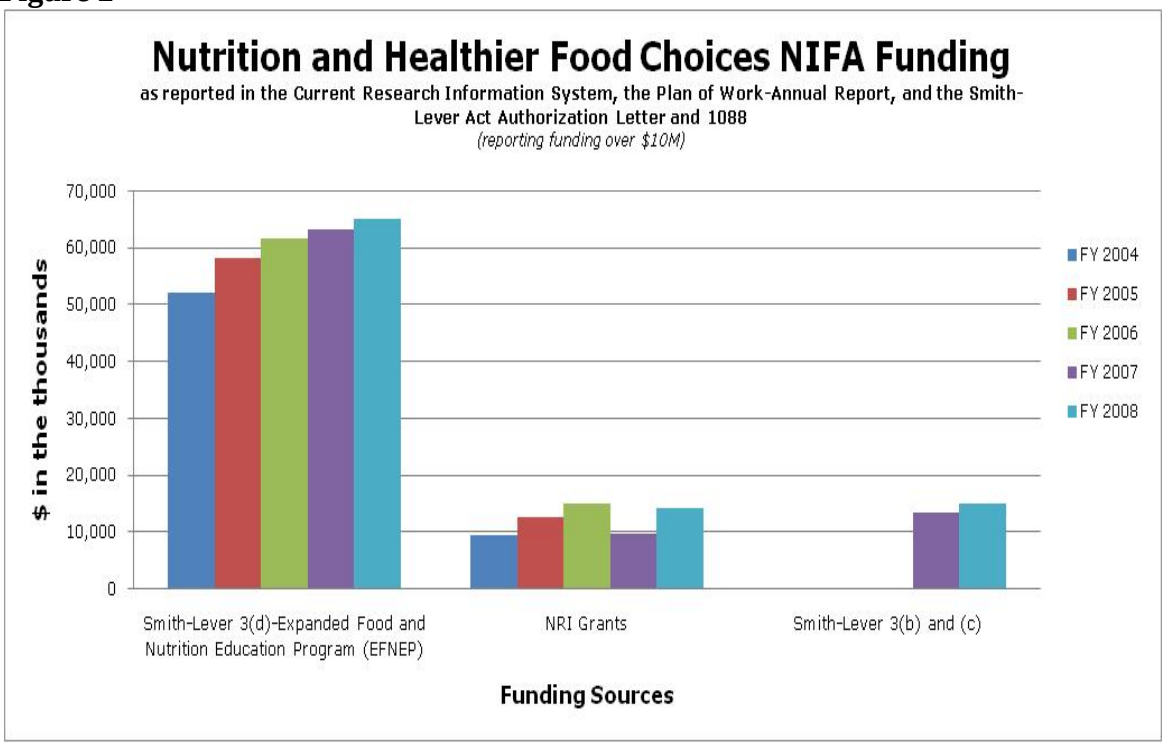


Figure 2 illustrates Agency competitive and formula grant expenditures and obligations that are over $10M for fiscal years 2004-2008.

Smith-Lever 3(d) EFNEP obligations totaled over $300M for fiscal years 2004-2008. As indicated in the bar chart above, EFNEP's funding has slightly increased over the years. Smith-Lever 3(d) EFNEP accounts for a little over 65% of NIFA funding for this time period. This portfolio receives other Smith Lever 3(d) funding which totaled $1.1M for fiscal years 2004-2008. Please see figure 4 for more information regarding this portfolio's Smith-Lever 3(d) funding.

National Research Initiative funding increased in FY 2004 because of 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 NIFA because it addressed a high priority issue. Funding for the Human Nutrition and Obesity program has remained stable over the past few years and remains a high priority national issue. Tables in this document report funds by fiscal year awarded. Because many NRI projects involve human subjects and therefore must obtain Institutional Review Board approval, awards may not necessarily be made in the same year funds are appropriated. Therefore there are some fluctuations in the funding when reported in terms of Fiscal Year awarded.

The National Research Initiative (NRI) Grants program was not reauthorized in the Food, Conservation, and Energy Act of 2008, but the Agriculture and Food Research Initiative (AFRI) Competitive Grants Program was authorized in 2009 in place of the NRI. This

funding chart identified NRI obligated dollars because dollars received were under this funding category during the reporting timeframe. Information regarding the AFRI program may be found on the Agency's website at http://www.NIFA.usda.gov/funding/afri/afri_synopsis.html.

Smith-Lever 3(b) and (c) dollars were first reported through the Plan of Work-Annual Report in 2007. Since FY 2007, Smith-Lever 3(b) and (c) expended a total of $28M. Figure 2 shows a slight increase in Smith-Lever 3(b) and (c) funding between FY 2007 and FY 2008.

Figure 3

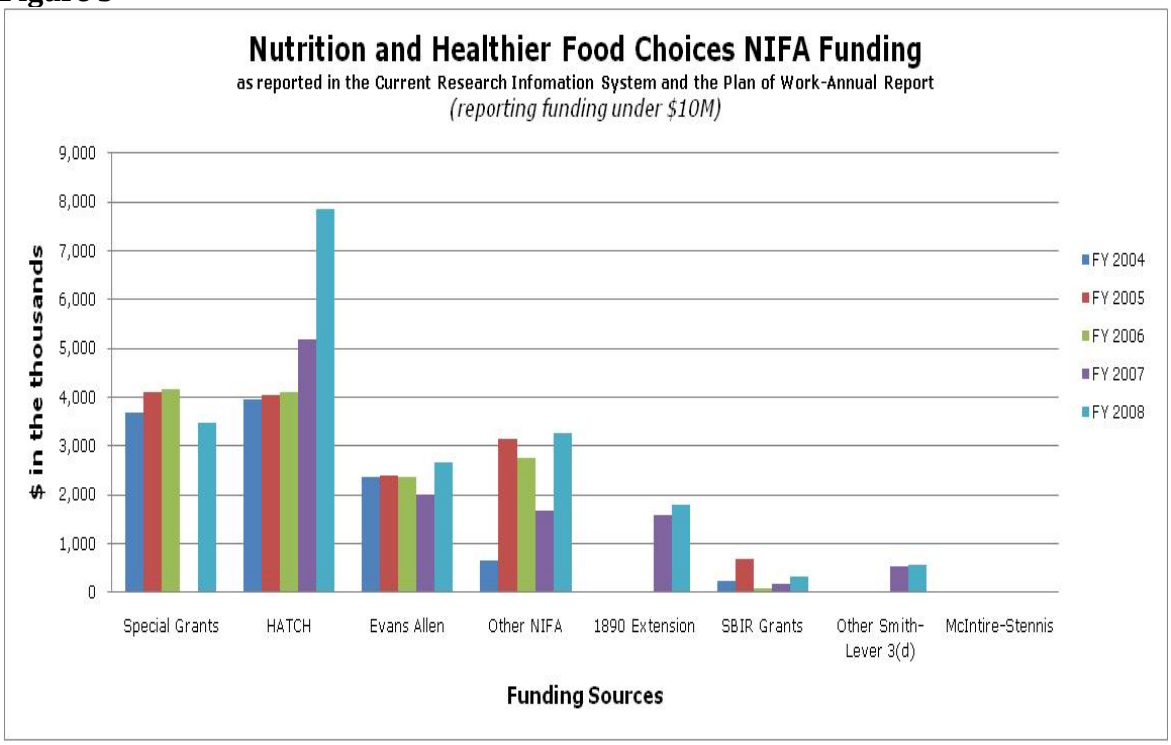


Figure 3 illustrates Agency competitive and formula grant expenditures and obligations ed under $10M for fiscal years 2004-2008. For fiscal years 2004-2008 McIntire-Stennis expenditures for this portfolio totaled $9,000, $5,000 in FY 2004 and $4,000 in FY 2005.

1890 Extension dollars were first reported through the Plan of Work-Annual Report in 2007. Expenditures reported for 1890 Extension dollars totaled just over $3M for fiscal years FY 2007 and FY 2008.

Hatch funding shows an increase in FY 2007 while Special Grants did not receive any funding in FY 2007. Funds normally allocated to Special Grants were allocated to Hatch, at the same time earmarks were not funded. Hatch funding in FY 2008 increased by $2.6M, the majority of the increase funding may be found in KA 703 (an increase of $697,000 in FY 2008) and in KA 702 (an increase of just over $1M in FY 2008). Because Hatch funds are allocated to KAs by state Experiment Station Directors,

program cannot explain the increase other than funds have been shifted from other KAs to KAs 701-704.

Figure 4.

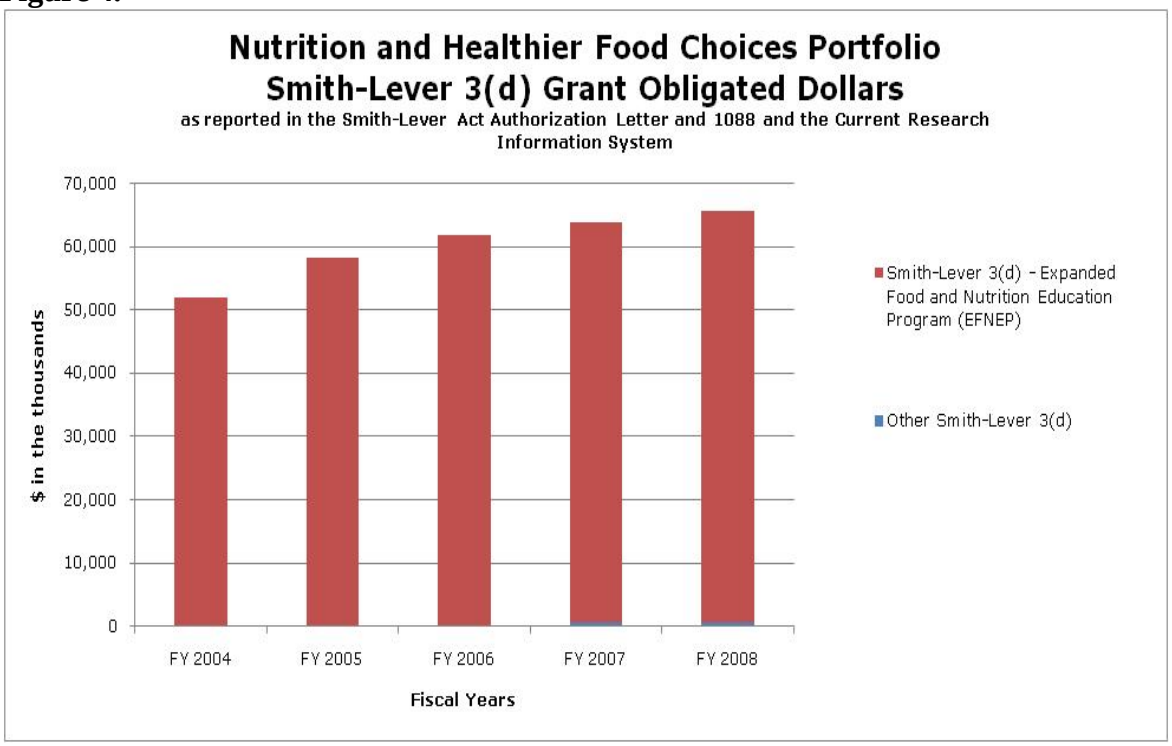


Figure 4 displays Smith-Lever 3(d) obligated dollars for fiscal years 2004-2008, which total just over $301M. This portfolio has five different types of Smith-Lever 3(d) funding, as seen in the table below, but the Expanded Food and Nutrition Program (EFNEP) provides the majority of Smith-Lever 3(d) funding for this portfolio. EFNEP is one type of Smith-Lever 3(d) funding sources. As indicated in Table 6, EFNEP accounts for over $300M Smith-Lever 3(d) obligated dollars, while Non-EFNEP Smith-Lever 3(d) funding sources combined account for only $1M. The FY 2006 increase in EFNEP funding coincided with making EFNEP available to 1890 land-grant institutions. Non-EFNEP Smith-Lever 3(d) obligations were reported through the "Other NIFA" funding category during FY 2003 – FY 2006. Starting in FY 2007, these obligated dollars are reported separately, which explains some of the decrease in funding in the "Other NIFA" funding category for FY 2007.

Table 6: Portfolio Level Smith-Lever 3(d) Obligated Dollars

Portfolio: Nutrition and Healthier Food Choices						
Smith-Lever 3(d) Obligated Dollars in Thousands						
(Source: Smith-Lever Act Authorization Letter and 1088 and the Current Research Information System)						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
Expanded Food and Nutrition Program (EFNEP)	52,057	58,301	62,008	63,538	65,135	301,039
Extension Tribal College Program	*NA*	*NA*	*NA*	79	NA	79
EIRP Indian Reservation Program	*NA*	*NA*	*NA*	167	NA	167
ESNP Special Needs	*NA*	*NA*	*NA*	10	NA	10
Youth at Risk	*NA*	*NA*	*NA*	362	NA	362
Total Smith-Lever 3(d)	52,057	58,301	62,008	64,156	65,135	301,657

Table 6 displays all Smith-Lever 3(d) obligated dollars for this portfolio. Expanded Food and Nutrition Program (EFNEP) provides the majority of this portfolios Smith-Lever 3(d) funding, which is reported through the Smith-Lever Act Authorization Letter and 1088. Smith-Lever 3(d) obligated dollars reported in CRIS only accounts for .2% of Smith-Lever 3(d) obligated dollars for this portfolio.

Figure 5

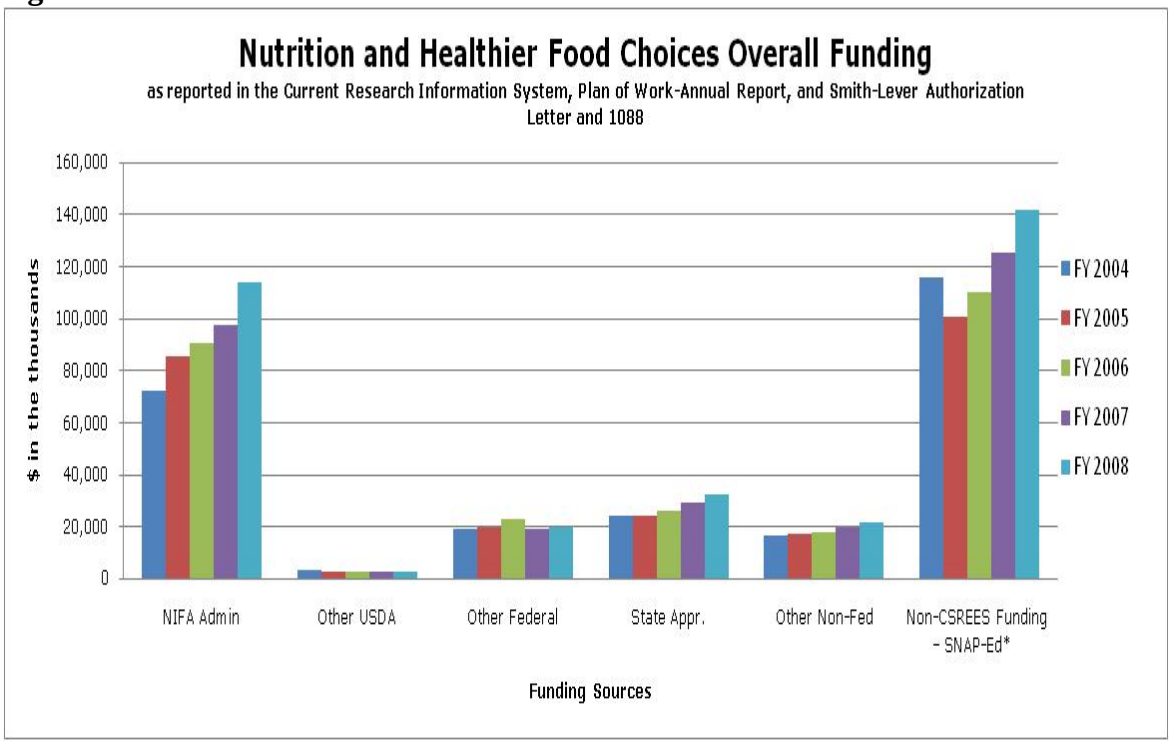


Figure 5 highlights differences between total Agency funding (NIFA Admin) and all non-Agency funding within this portfolio and illustrates increased capacity that comes from

coordinated and cooperative efforts. Supplemental Nutrition Assistance Program – Education (SNAP-Ed) funds the majority of this portfolio's activities ($593M during FY 2004-FY 2008). The Community Food Projects Competitive Grant Program (CFPCGP) provided $5M every year being reported in these charts, CFPCGP dollars are being reported under the "Other USDA" category.

Figure 6

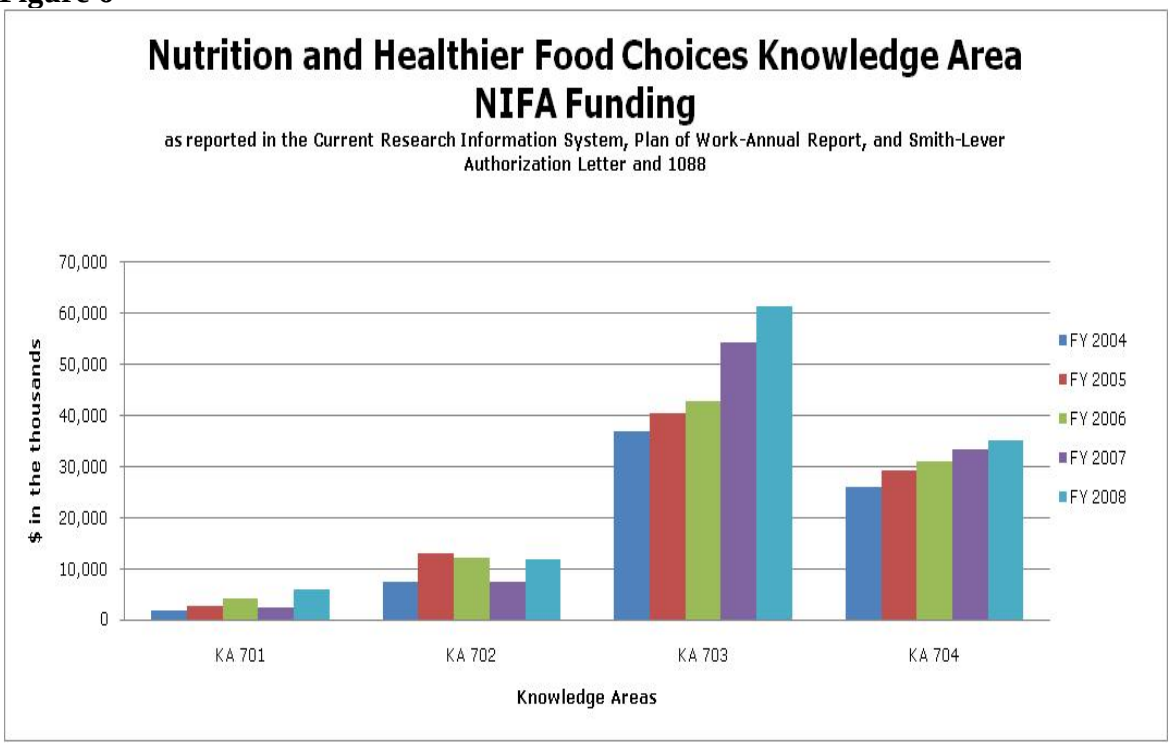


Figure 6 illustrates knowledge area NIFA funding for this portfolio, for FY 2004 through FY 2008. The majority of this portfolio's funding comes from knowledge areas 703 and 704, this is because the entire portfolio's Smith-Lever 3(d)-EFNEP funding is equally divided between these two KAs. Detailed funding tables for these four KAs may be found in appendices B and C.

Portfolio Results

Portfolio Outcomes

- EFNEP is supported through Smith-Lever 3(d) funding. Continuing a long-standing pattern of change, reported outcomes included a 0.8 cup equivalent increase in fruits and vegetables intake by adult participants. In addition, 84% of adult participants also reported improved food resource management practices, 88% reported improvement in nutrition practices and 65% reported increases in food safety practices. For youth participants, 72% now eat a variety of food, 68% increased their knowledge of the essentials of human nutrition, 63% improved their practices in food

preparation and safety and 59% increased their ability to select low-cost, nutritious foods. (2009)

- A group of researchers from Yale University, the University of Connecticut and Cornell University have established an entirely new paradigm for the effects of dietary protein on calcium retention in bone. They found that increasing dietary protein within the range of usual American intakes improves calcium absorption, contrary to what was previously believed. These researchers are continuing their work to characterize the cellular and molecular mechanisms by which dietary protein affects calcium economy. This work will result in better informed dietary guidance to maintain bone health. This project was funded by the NRI Bioactive Food Components for Optimal Health Program. (2009)

- An NRI-funded project at the Baylor College of Medicine and Pennsylvania State University has provided the only evidence to date showing the impact of food portion size on energy intakes in children beyond a single meal. Investigators found that children do not adequately compensate for increased intake from large portions and that daily energy intake was significantly (~10 %) higher when the size of the main dish portion at each meal and a snack was doubled. The research team concluded that the importance of portion size for energy balance appears to be determined primarily by the extent of children's routine exposure to large portions. This work can be used as the basis for guidance to parents on recommended child feeding practices. (2009)

Portfolio Leadership and Management

Leadership and Contributions

Stakeholder Assessment

NIFA 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. NIFA 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 departments in universities across the country as well as other NIFA 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 NIFA for competitive programs in the areas of food, nutrition and health can be found at: http://www.NIFA.usda.gov/business/reporting/stakeholder/fo_stakeholder.html .

Ad hoc and standing committees are used to solicit stakeholder input and accomplish specific tasks of national importance for the Expanded Food and Nutrition Education Program (EFNEP) and the land-grant university-based Supplemental Nutrition Assistance Program – Education (SNAP-Ed) (formerly known as Food Stamp Nutrition Education (FSNE) program). Recent examples for EFNEP include committees organized 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 agency reporting system, and potentially other federal databases; and to review the existing EFNEP Policy Document and provide suggestions and recommendations for revision. The primary standing committee for SNAP-Ed is the SNAP-Ed Program Development Team, which is comprised of FCS administrators and program coordinators from each Extension region.

In 2007, national leadership for EFNEP and the SNAP-Ed (formally 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 SNAP-Ed through the Cooperative Extension System. This general plan for shared national leadership was approved by ECOP in November. In 2008, a leadership team was formalized, consisting of one NPL and two university FCS leaders/department chairs. Members of the SNAP-Ed Program Development Team work closely with the leadership team to provide feedback from the partners and to address program priorities.

In 2008, the *Nutrition and Health Committee for Planning and Guidance* was formed to strategically position Extension programs for the future. Committee members are nutrition and health Extension specialists who represent all regions of the county as well as 1862 and 1890 institutions. They provide expert opinion to National Program Leaders regarding future national health and nutrition policies and programs to strategically position CES for the future. During 2008-09, the Committee identified the following as areas needing emphasis for CES:

- Identification of Evaluation indicators to capture the outcome of interventions to improve nutrition, health and physical activity;
- Recommendation of a formal Curriculum oversight process and format to facilitate a national review and dissemination system of Cooperative Extension Service nutrition and health curriculum resources.
- Identification of needs, appropriate partnerships, current resources, and shared experiences related to nutrition and physical activity educational materials and training for Extension program leaders.
- Coordination of professional training needs and opportunities across state extension systems that include identifying subject matter content and delivery

methods.
- Communication and linkage to resources to foster dialogue and sharing of these resources nationwide.

Prioritizing Stakeholder Input and Allocation

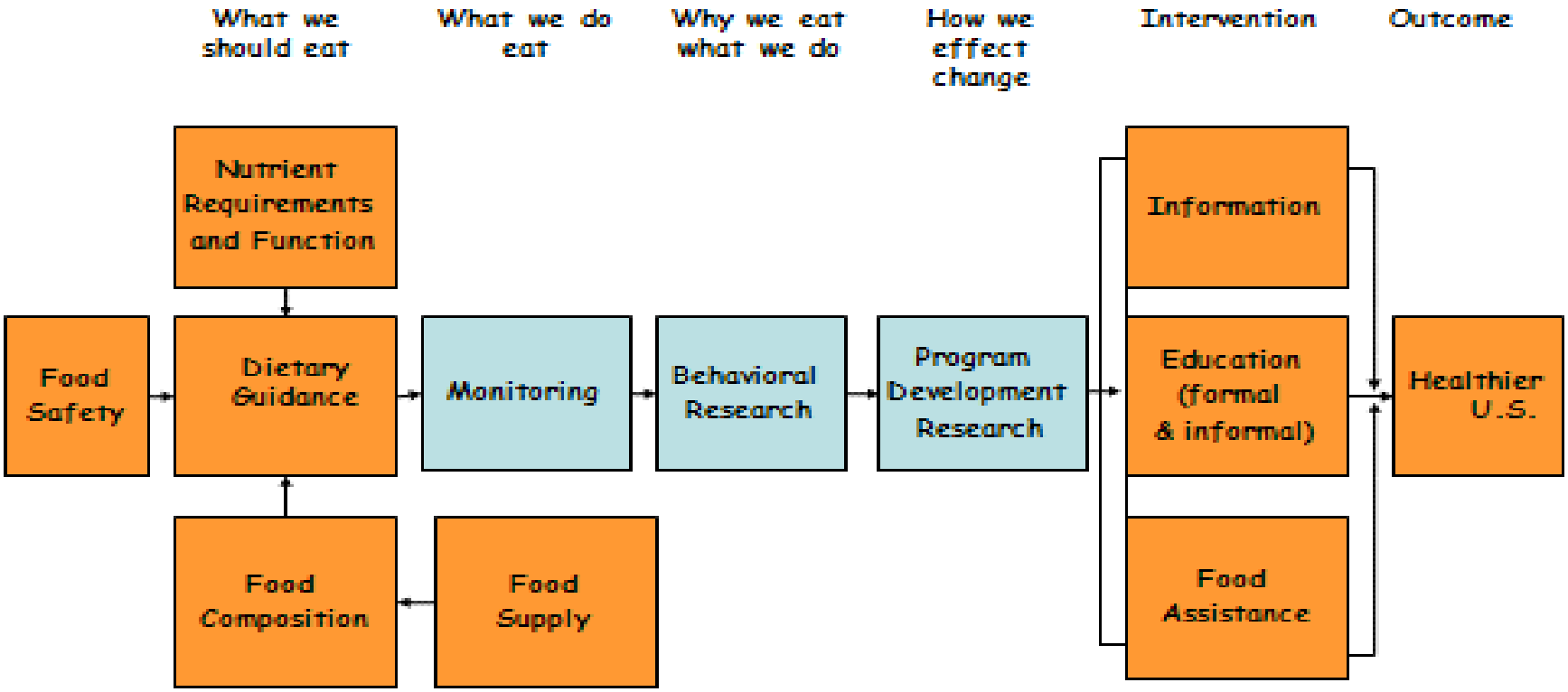
As leaders in the field, the NPLs, with responsibility in the nutrition and healthier food choices portfolio area, carefully review stakeholder input and make strategic priority decisions.

For example, the addition of a graduate education priority jointly funded by the AFRI Bioactive Food Components for Optimal Health and Improving Food Quality and Value programs was 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 7 provides a visual display demonstrating how the components of the Nutrition and Healthier Food Choices' Portfolio and the work of other agencies complement each other in progress toward improving the nation's health. Coordination is ensured by active participation in intra- and inter-departmental nutrition coordinating committees. In addition, NIFA works to integrate research, education and extension activities.

Figure 7: NIFA: Research, Education and Extension for a HealthierUS



The first four columns of Figure 7 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; NIFA supported research in these areas has been included in other Portfolios, including the Food Safety and Quality of Life in Rural Areas portfolios, and therefore is not part of Figure 7.

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 NIFA's Higher Education programs, as well as informal education programs carried out by NIFA's Cooperative Extension System (CES) program in Food, Nutrition and Health; NIFA's Expanded Food and Nutrition Education Program (EFNEP); NIFA's 4-H and youth development programs; and the Supplemental Nutrition Assistance Program – Education (SNAP-Ed) 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., Supplemental Nutrition Assistance Program, WIC and Child and Adult Care Feeding Programs), and NIFA'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 where 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 NIFA, a state-based SNAP-Ed administrative office was 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 and standing committees. In addition, the office tracks program plan approval rates. If there are specific concerns communicated by the universities the NIFA NPL liaison is alerted. Themes of broad concern are shared with FNS, the administering agency for SNAP-Ed, 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 NIFA' 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), Agriculture and Food Research Initiative (AFRI) and Community Food Projects are required to attend annual workshops to report on their progress. In 2008, the NRI held a workshop for the Bioactive Food Components for Optimal Health program at the University of Tennessee, Knoxville with 40 Project Directors and other project personnel attending. The NRI also held a workshop for the Human Nutrition and Obesity program at the Southwest Indian Polytechnic Institute with over 80 Project Directors and other project personnel participating. The response was overwhelmingly positive. Many participants express the belief that this forum provides a positive sharing and learning experience.

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

The biggest shortcoming for this portfolio group is the loss of personnel. The equivalent of three FTE positions has been lost since 2006. Nutrition team members have attempted to fill gaps by taking on additional work; nevertheless, the high standards at which this program has performed in the past cannot continue at current staffing levels.

Although much progress has been made, at this time the Agency's new reporting system (to replace CRIS) has yet to be implemented. Prior issues with respect to accessing information from the Plan of Work (POW) and Annual Reports from the states have been resolved.

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 NIFA. This strategic realignment will enrich the community nutrition education focus within the Families, 4-H and Nutrition Unit, and within NIFA. EFNEP was incorporated into the Grants.gov formula grant process during FY2008 and FY 2009. This has allowed EFNEP to be in compliance with the Federal Financial Accountability and Transparency Act of 2006 (FFATA) and thereby strengthened the visibility of accountability demonstrated through EFNEP funds.

EFNEP's evaluation and reporting system is also undergoing considerable revision. In FY2009, an ad hoc task force provided recommendations, which NIFA plans has used in developing 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 Agency's reporting systems and potentially other federal 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 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 increased 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. NIFA investigated 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. Integrated or dual programs were identified and course requirements specified. Program guidance and a summary of assessment results are posted on the NIFA health page. Additionally, because the Agriculture and Food Research Initiative (AFRI) is authorized to fund single-function education projects, the Bioactive Food Components for Optimal Health and Improving Food Quality and Value programs are collaborating on a priority to fund cross-disciplinary training programs in the area of functional foods for improved human health. For FY2009, six proposals were submitted; the program anticipates funding one project.

A comprehensive communication strategy is needed for mentoring, dialogue, and sharing of promising practices and lessons learned among university administrators, staff, and students responsible for nutrition programs such as SNAP-Ed, among other programs. 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.

NIFA 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, physical activity guidelines, Healthy People 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 NIFA, 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.

NIFA has carved a niche in the broad efforts to address the obesity problem. The chosen focus is based on the agency's strategic advantages and in light of what others in the public and private sector are doing. Therefore, NIFA is focusing on the behavioral (not metabolic or genetic) aspects of obesity prevention (not treatment.) Because of the very applied nature of nutrition education research and NIFA's tie with land-grant universities, it is focusing on integrated projects that bring together at least two components of the three part land-grant university mission of research, education and extension. In addition

to funding integrated projects, NIFA also funded single function research projects for several years. Very good research projects were funded which have shed light on the factors that influence obesity. Now we have moved away from the research projects and are funding in addition to the integrated projects, single function extension projects. These are intended to provide for the expansion of interventions which have been shown to be effective. This is consistent with the goal of focusing less on defining the problem and more on finding a solution.

What are Others Doing?

This section of the portfolio identifies and describes other federal agencies' and private organizations' research, education and extension activities that are responding to similar needs as those addressed by the Nutrition and Healthier Food Choices Portfolio. A few examples from other agencies and organizations are listed below:

- U. S. Department of Health and Human Services' Centers for Disease Control supports the LEAN Works program. This program makes use of science and practice-based evidence to guide in planning, building, promoting, and assessing worksite obesity prevention and control programs. CDC's Division of Nutrition Physical Activity and Obesity assists employers in responding to the current obesity epidemic by utilizing evidence-based research from the *Community Guide* Recommendations and promising practices.

- USDA Agricultural Research Services' (ARS) Human Nutrition Program seeks to define the role of food and its components in optimizing health throughout the life cycle for all Americans by conducting high national priority research. The research components of this program include:
  - Composition of Foods
  - Bioavailability of Nutrients and Food Components
  - Nutrition Monitoring
  - Nutrient Requirements
  - Health Promoting Properties of Plant and Animal Foods
  - Relationship between Diet, Genetics, Lifestyle, and Prevention of Obesity and Disease
  - Health Promoting Strategies for Targeted Populations

- NutrientsFromDiet.com - Nutrient Analysis – Diet Analysis and Tracking Tool website is designed to help individuals make smart nutrition decisions by giving them the power of knowledge in tracking vital nutrients contained in the foods you consume every day. The site increases awareness not only of what is missing, but of what nutrient-dense foods individuals should be consuming. http://nutrientsfromdiet.com/

- Team Nutrition, which is sponsored by USDA's Food and Nutrition Service agency, is an integrated, behavior based, comprehensive plan for promoting the nutritional health of the Nation's children. This plan involves schools, parents, and the community in efforts to continuously improve school meals, and to promote

the health and education amongst school children. This program's goal is to improve children's lifelong eating and physical activity habits through principles based the Dietary Guidelines for Americans and *MyPyramid*.

- *Eat Smart. Play Hard.*™ , supported through USDA's Food and Nutrition Service agency, provides practical suggestions to help motivate children and their caregivers to eat healthy and be active. The Eat Smart. Play Hard.TM Campaign messages and materials based them on the Food Guide Pyramid and Dietary Guidelines for Americans.

- The Center for Nutrition Policy and Promotion (CNPP) has established a federal advisory committee to begin development of the 2010 Dietary Guidelines for Americans which will set federal nutrition policy. In 2008, NIFA provided CNPP with suggestions for members for the Dietary Guidelines Advisory Committee. CNPP also developed the Healthy Eating Index which is used to assess progress in meeting the Dietary Guidelines. To promote healthful diets CNPP has 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 Policy and 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 NIFA 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

- The Center for Nutrition Policy and Promotion (CNPP) maintains the USDA Nutrition Evidence Library (NEL). Developed as a web-based system with a set of tools to support the 2010 Dietary Guidelines Advisory Committee and other efforts to improve the nutritional well-being of Americans, the library will ensure that the relevant, timely, high-quality, and understandable presentation of evidence is available to support translation of nutrition research into policies that promote the health of the US population. Completed reports and supporting documents will be archived in the NEL and made accessible to stakeholders and the public.

- The Department of Health and Human Services has taken the lead for implementation of the Physical Activity Guidelines for Americans through strategic partnership and quarterly webinars to update and exchange information. NIFA worked with Communications to send a Physical Activity Toolkit to each of the counties served by CES.

- The National Institutes of Health plans for obesity-related research can be found at: http://www.obesityresearch.nih.gov/about/about.htm. NIFA 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 integrated and extension projects exploring behavioral determinants that can explain overweight and obesity and development of effective intervention strategies to prevent development of overweight and obesity. NIFA-funded projects must also focus on food and diet.

- The Department of Health and Human Services has taken the lead for the development of the Healthy People 2020 report which will set the national health objectives for the next 10 years. NIFA and the other USDA agencies that play a role in nutrition have participated in an advisory committee related to the nutrition related objectives. NIFA has been particularly involved in the objectives related to healthy weight and obesity. Release of the final report is planned for September 2010.

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 consumption of a nutritious diet is important for maintaining long-term health and decreasing the risk for chronic disease. 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.

To meet these identified needs of agriculture, the long-term (10-year) goal of the portfolio is to provide evidence concerning health effects of nutrients and other bioactive food components that can be used by scientific organizations in revising or selecting endpoints for setting dietary reference intakes and tolerable upper limits for such components (e.g. omega-3 fatty acids, vitamin D, calcium, and soy phytoestrogens).

Over the past decade, the Institute of Medicine has developed a detailed list of research gaps in food composition and nutrient requirements. Key areas requiring ongoing research include:

- which nutrients, and in what quantities, are needed for optimal health;
- strategies to evaluate individual nutritional status, especially using biomarkers;
- the impact of factors such as age, gender, race and ethnicity on nutrient requirements;
- exploration of the beneficial health impacts of components in food beyond those already identified as nutrients, and the quantities needed to achieve these impacts.

Results of projects funded by this portfolio, together with research funded by USDA's Agricultural Research Service and other federal agencies, form the research base for key nutrition policies. These policies include Dietary Reference Intakes released by the Institute of Medicine Food and Nutrition Board, the Dietary Guidelines for Americans released jointly by USDA and the Department of Health and Human Services, USDA's MyPyramid, and the Food and Drug Administration's Nutrition Facts Label.

The amount of funds available for competitive programs on requirements and functions of nutrients and other beneficial components in foods, while fluctuating slightly from

year to year, has not increased significantly since FY 2000. Therefore, NIFA has had to limit the focus of competitive grants in recent years to two areas: promotion of bone health and prevention of inflammation. The agency has a reasonable portfolio of projects making good progress in the area of nutrition and bone health (see "Key Outcomes Reported in 2009") and anticipates replacing this priority by FY 2012. Overall progress in filling needed research gaps has been slow due to the rising cost of research coupled with a decade of flat funding.

Figure 8: KA 701 and 702's Logic Model

Situation	Inputs	Activities	Outputs	Outcomes		
				Knowledge	Actions	Conditions
- Need better methods to assess nutritional status, including biomarkers & animal models for human health outcomes. - Need to determine the quantities of nutrients and other components in food that are beneficial to human health, their functions & requirements, their interactions & relationship to human health outcomes. - Need to disseminate information to professionals & consumers on nutrient composition of food & requirements & function of nutrients & other food components - Need to strengthen higher education programs in nutritional science	**Financial** *Federal*: Competitive & formula grants, & Special grants, SBIR. *State/ local*: Funds for research, education & extension **Human** - NIFA - NPLs - Federal partners - University Admin. & Faculty - Practitioners - Educators - Volunteers - Advisory Groups - Stakeholders - Community organizers & leaders	**Research Activities:** - Mechanistic studies of bioavailability, function, efficacy & safety of nutrients & food components - Studies of inter-relationships among nutrients & food components - Studies of mechanisms underlying the relationships between diet and optimal human health **Education Activities:** - Improved educational opportunities in nutritional science and food science through: - Fellowships & scholarships for students - Postdoctoral fellowships - Research training opportunities for graduate students - Support for novel interdisciplinary graduate programs **Extension Activities:** - Informing policies (e.g. Dietary Reference Intakes, Dietary Guidelines for Americans, My Pyramid - Outreach to health & education professionals **Integrated Activities:** Integrated research, education & extension activities focused on food composition & nutrient requirements	- New fundamental or applied knowledge - Publications - Practical knowledge for policy & decision-makers - Information, skills & technology for individuals, families, communities & programs - Participants reached - Students graduated with training in nutritional sciences	Researchers, educators, practitioners, policy makers and college students gain knowledge about: - Tools & biomarkers to assess nutrition & health status - Appropriate animal models for human health outcomes - The bioavailability, function, efficacy & safety of nutrients & other beneficial food components	Policy makers use research findings to: - Develop Dietary Reference Intakes, Dietary Guidelines for Americans & MyPyramid recommendations - Develop and use new assessment tools & biomarkers to identify needs & vulnerable populations Practitioners use research & assessment outcomes to restructure policy & develop more effective interventions Well trained researchers, educators & practitioners in the field use results of research in their work	- Improved the environment which supports healthy food choices & physical activity - Improved nutritional quality of the U.S. food supply - Improve nutritional status & health of the nation's consumers

Assumptions: The health & well being of the nation will be improved through research & integrated projects to determine dietary recommendations.	**External Factors:** Legislative & policy parameters; tight budgets at the Federal, state and community level; expanding science base; changing national priorities; demographics; & economic conditions; changes in the food supply at all levels – production, distribution, processing, retail & consumer preparation; changes in food accessibility & affordability; & changes in average lifespan and physical activity levels.

Key Outputs Reported in 2009

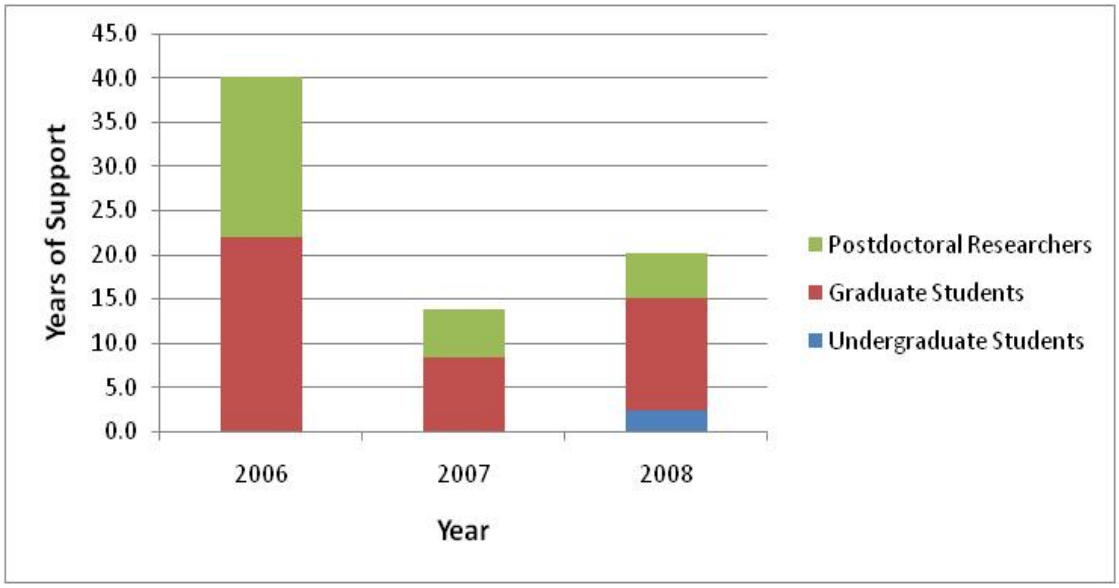
- Between 2006 and 2009, the National Research Initiative (NRI) Competitive Grants Bioactive Food Components for Optimal Health Program supported research on requirements and functions of nutrients and other food components. During this time period, 262 proposals were received and reviewed, and 50 grants awarded, for a success rate of 19%. The average award size was $417,000 for an average time period of 2.5 years. In FY 2007-2008, the program also supported a priority with the NRI Improving Food Quality and Value Program to solicit integrated project proposals on the topic of functional foods to promote energy balance. Eleven proposals were received and reviewed for this priority and three grants were awarded, for a success rate of 27%. Abstracts of funded NRI projects can be found at: http://www.NIFA.usda.gov/funding/nri/nri_abstracts_topic.html. In FY 2009, NRI was superseded by the Agriculture and Food Research Initiative (AFRI).

- Graduate and undergraduate education activities are covered in the Higher Education Portfolio. However, nutrition research projects supported by NIFA frequently include financial support for graduate students, postdoctoral researchers and sometimes for undergraduate students to work on research and integrated projects. Figure 9 shows the level of support for undergraduate students, graduate students, and postdoctoral researchers in terms of total person-years for FY 2006-2008. FY 2008 was the first year for which data on undergraduate student support were collected. Undergraduate involvement in a project must be substantial to be tracked (e.g., not merely washing glassware in a laboratory). The program has noted a trend in declining support for graduate students and postdoctoral researchers in recent years; researchers in the field have told us they are using technicians more often because they are less expensive overall. The program has taken steps to encourage more participation by graduate students and post-docs, including adding language encouraging their use in the RFA and encouraging submission of Postdoctoral Fellowship applications at grantsmanship workshops and the Association of Nutrition Departments and Programs annual meeting.

- Peer-reviewed journal articles and conference proceedings provide targeted audiences with easy access to research findings. In 2008 and early 2009, about 60 peer-reviewed journal publications and 20 oral presentations resulted from NRI competitive grants, Special Grants and formula grants in the areas of KA 701 and KA 702. These are listed in Appendix I. This is not an exhaustive list; it is compiled from final technical reports in the Current Research Information System (CRIS) and from information sent to the program by Project Directors. Educators and practitioners use these publications to develop educational materials about the composition of food and nutrient requirements, 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).

- Hatch formula grants are devoted to research on food composition (KA 701) and function and requirements of nutrients and other health-promoting components of food. In August, 2009 a search of CRIS revealed that 135 Hatch projects were coded under KA 701 and 418 were coded under 702.

Figure 9: Support for Undergraduate Students, 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, 2006-2008



Key Outcomes Reported in 2009

The three examples provided below are outcomes relating to improvement in bone health, one of the current priorities of the NRI/AFRI Bioactive Food Components for Optimal Health Program. The importance of bone health is not always widely recognized, yet according to the Department of Health and Human Services, osteoporosis, the most common bone disease, affects 10 million Americans. Over their lifetimes, half of all women and one-quarter of all men can expect to suffer from an osteoporosis-related fracture. There are many causes of osteoporosis, yet poor nutrition, extremes in body weight and estrogen levels are considered important contributors.

- In a project funded by the NRI, a group of investigators from Yale University, the University of Connecticut and Cornell University has established an entirely new paradigm for dietary protein's effects on calcium economy. Increasing dietary protein within the range of usual American intakes improves calcium absorption (contrary to what was previously believed), while a low protein intake leads to reduced absorption efficiency. This work has also demonstrated one plausible mechanism for the effect of dietary protein on calcium absorption via the calcium-sensing receptor. The long-term goal of this research is to understand the mechanism by which dietary protein affects calcium transporters in the intestine. In the aggregate, the work of this group of

researchers will help characterize the cellular and molecular mechanisms by which dietary protein affects calcium economy so that the bioactive components of dietary protein can be better characterized. This group received competitive funding from AFRI in 2009 to continue their work on mechanisms. Results of this research will result in better-informed nutritional guidelines to maintain bone health.

- In a project funded by a Hatch formula grant as part of a multistate project and by the NRI, researchers at Oklahoma State University are studying the use of dried plum in protecting bone health. These studies are building on previous work that demonstrated in a skeletally mature osteopenic animal model of ovarian hormone deficiency that dried plum is effective in preventing bone loss. The investigators are now following up to determine the mechanisms by which dried plum alters bone metabolism and what component(s) of dried plum are responsible for these bone-protective effects. The investigators found that dried plum acts via a different mechanism than parathyroid hormone on trabecular (spongy) bone in that it slows the ovariectomy-induced increase in bone turnover in osteopenic animals These data are the first to suggest that although dried plum has been shown to restore bone, it acts via a different mechanism on trabecular bone than intermittent parathyroid hormone therapy. In terms of the components of dried plum, phytochemicals such as the polyphenolic compounds in dried plums appear to be responsible in part for the effects on slowing bone turnover. These compounds also have potent anti-inflammatory properties that counter the enhanced bone turnover associated with inflammatory conditions. Colleagues at Florida State University are following up with a human clinical trial also funded by the NRI to determine if dried plum is effective in maintaining bone health in humans; those results are expected to be available by next year.

- A project funded by a Hatch formula grant at Rutgers University focused on the hormonal and dietary mechanisms regulating bone during caloric restriction. The researchers have established that caloric restriction increases bone turnover and loss and may be partially due to a reduction in calcium absorption during moderate caloric restriction and after weight loss surgery. They also observed that serum estrogen levels are decreased with weight reduction in older women and may be regulating the loss of bone. Adequate calcium intake (1200-1500 mg/day) during caloric restriction is required to minimize bone loss, but the effect of higher vitamin D may also be important and will be addressed in future studies. Lectures discussing the nutritional regulation of bone in obesity and the prevention of bone loss have been disseminated to the community and around the country. The investigators anticipate that these studies will contribute to future guidelines for healthy weight loss and lifestyle to provide new recommendations to prevent osteoporosis.

- Researchers at Cornell University are conducting a longitudinal study of 300 pregnant adolescents in Rochester, New York to learn more about the calcium and vitamin D requirements of pregnant adolescents and the impact of maternal calcium and vitamin D status on bone health in both the mother and the infant. To date, they have found that maternal calcium intake is not associated with premature birth or fetal bone growth. Approximately half of all mothers and newborn infants had insufficient levels of vitamin D. Maternal vitamin D levels were significantly positively correlated with

fetal bone growth. This study is still ongoing, and is providing data relevant to pregnant women across the United States. It is particularly important because almost nothing is currently known about pregnant adolescents' requirements for calcium and vitamin D. Adolescent pregnancy disproportionately affects minorities. The data obtained from this study will have particular relevance to minority populations to improve nutritional recommendations for this vulnerable age group and life stage. These teens are frequently economically, socially and educationally disadvantaged and this situation is only further exacerbated by early childbearing. This group of investigators recently received an additional NRI grant to study iron requirements and metabolism in pregnant adolescents.

These projects have improved our knowledge about how diet affects bone health. They have also provided information about dietary changes that individuals can make in order to reduce their risk of osteoporosis later in life (consume adequate protein and vitamin D, add dried plum to the diet, and when following a weight reduction diet, be sure to consume at least 1200 mg of calcium daily). This information can be used by nutrition educators and practitioners in providing advice and developing nutrition education materials for consumers.

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

Introduction

The areas of nutrition included in this section of the portfolio are represented by Knowledge Area 703 "Nutrition education and behavior" and Knowledge Area 704 "Nutrition and hunger in the population. The work conducted in Knowledge Area 703 has a strongly integrated balance of nutrition education research and extension/outreach programs. The long-term goals are understanding the behavioral factors that influence choices related to food and physical activity especially those related to obesity prevention, and 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 well being. The short term goals include developing theories on how behavioral factors influence diet, physical activity and obesity prevention; testing validity of behavioral measures for evaluating progress in obesity prevention efforts; and testing the effectiveness of strategies for preventing overweight and obesity. Because food is an integral part of the development of obesity, all work involves some aspect of food.

Work in this area should lead to improvements in diet, physical activity and obesity prevention. Obesity is the number one nutritional problem in America and, unfortunately, data from the Center for Disease Control indicates that the problem is growing worse. Other data from national food consumption survey indicate that few Americans meet the recommendations for a healthy diet and appropriate physical activity. There is some consensus now that the time has come to focus less on defining the problem and more on how to solve it. This is a position that is consistent with the work of the agency.

The work conducted in Knowledge Area 704 relates to food insecurity, food insufficiency, and hunger in the population. The development of analytical methods and pro-active attempts at hunger reduction through food banks, communities organizing to gain farmers' markets, community gardens, gardening, food buying clubs, food recovery and gleaning activities are included. The long-term goal of this work is to reduce the prevalence of food insecurity and hunger in the U.S.

Figure 10: KAs 703 & 704's Logic Model

Situation	Inputs	Activities	Outputs	Outcomes		
				Knowledge	Actions	Conditions
Poor diet & physical inactivity are associated with rising rates of obesity & other medical problems, increasing medical care costs & lost productivity Health disparities exist among populations There is a need for: - Interventions that change human behavior - Better evaluation tools - Strengthened higher education programs in community nutrition	**Financial** *Federal*: Competitive & formula grants, & Special grants, SBIR. *State/ local*: Funds for research, education & extension **Human** - NIFA - NPLs - Federal partners - University Admin. & Faculty - Practitioners - Educators - Volunteers - Advisory Groups - Stakeholders - Community organizers & leaders	**Research Activities:** - Studies of behavioral & environmental factors that influence human diet & physical activity - Studies to develop theory-driven interventions to change behavior - Studies to develop better evaluation tools to measure the success of interventions **Education Activities:** Improved human nutrition educational opportunities through: - Fellowships, scholarships & outreach opportunities for graduate & undergraduate students - Education & internships for Registered Dietitians **Extension Activities:** - Direct & indirect information dissemination and information delivery to target audiences - Community engagement - Informing policy/practice **Integrated Activities:** Integrated research, education & extension activities focused on nutritional problems	- New fundamental or applied knowledge - Publications - Practical knowledge for policy and decision-makers - Information, skills & technology for individuals, families, communities & programs - Participants reached - Students graduated in nutritional sciences	- Research expands knowledge of factors that influence diet, physical activity, food security, food safety, food resource management, & sustainable food systems - Research & practice expand knowledge of keys to effective educational interventions & evaluation methodologies for interventions - Individuals, families & communities report/demonstrate increase knowledge & skills College students gain knowledge related to nutrition	- Practitioners use research findings to develop better interventions - Improved evaluation tools are used to identify effective interventions - Program participants improve diet & food related behaviors - The number of well trained researchers, educators & practitioners is increased - Based on findings from research & practice, community leaders & public officials make changes that foster healthy diets & physical activity, & improve food security & sustainability	- Improved environments support healthy food choices & physical activity - Sustained improvements in human health

Assumptions: The health & well being of the nation will be improved through interventions that change behavior	**External Factors:** Legislative & policy parameters; changing individual & national priorities; demographics; economic conditions; food supply & changing dietary guidance based on an advancing science base; public confusion resulting from multiple, often conflicting, sources of information; & environmental conditions that promote overeating & physical inactivity.

Key Outputs Reported in 2009

- 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 emphasized integrated research, education and extension projects. For fiscal years 2006 -2008, 155 proposals for integrated projects were received and 31 were awarded making the success rate 20%. For the same time period, 92 research proposals were received and 12 were awarded making the success rate for these proposals 13%. For fiscal year 2008, 97 applications were received. Awards were made for 4 research projects for a total of $1M and 8 integrated projects for a total of $9.5M. Abstracts of funded projects can be found at http://www.NIFA.usda.gov/funding/nri/nri_abstracts_topic.html. For fiscal year 2009, the NRI was changed to the Agriculture and Food Research Initiative (AFRI). The focus on integrated projects related to obesity prevention continued with the deletion of the single function research priority and the addition of a single-function extension priority which was intended to provide an opportunity for expansion of interventions shown to be effective. This change is consistent with the further emphasis on how to solve the problem of obesity rather than in defining the problem.

- 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. In July of 2009, a search of the Current Research Information System revealed that 263 Hatch projects were coded 703 indicating that they involved at least in part nutrition education. Of these Hatch projects 142 addressed obesity at least in part.

- The Community Food Projects increase the availability of healthy, locally produced foods especially in impoverished neighborhoods, through food assistance programs, backyard and community gardens, grocery stores and farm stands, community supported agriculture shares, farmers' markets or food buying clubs. As an example, United Methodists for Mission and Justice, Inc. was funded to establish twelve new community gardens for entrepreneurial enterprises, agricultural skills training, health promotion, inter-generational mentoring, and food-based economic development. Critical components of the grant include nutrition education, opportunities for gardeners to sell excess produce, food preservation, and neighborhood building. Collaborations included 45 organizations.

- 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.

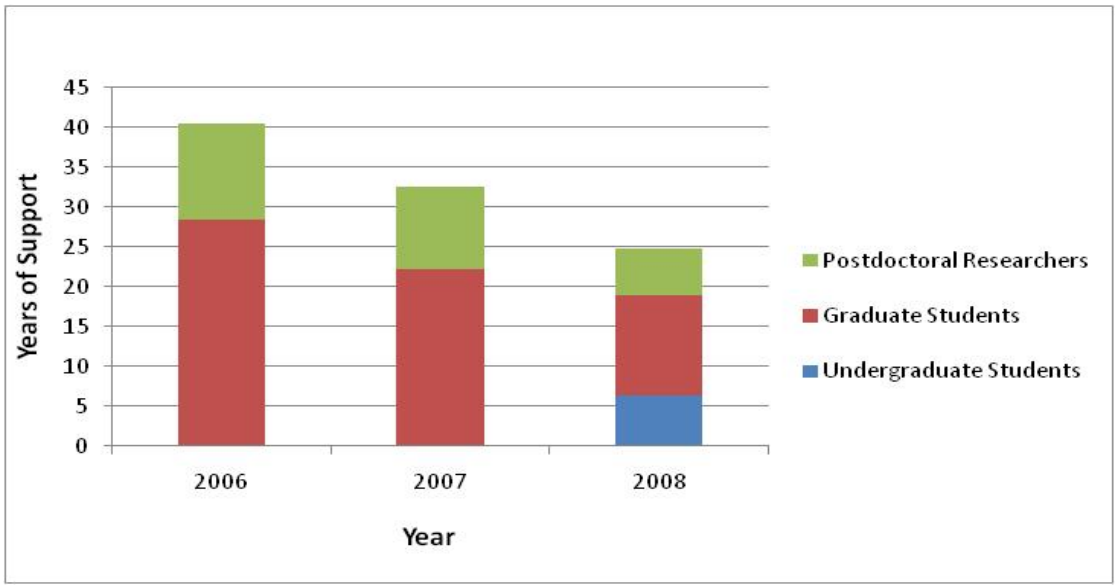
- Probably more than in any other area of research, nutrition education research has a direct application to extension work. The results of research and integrated projects are presented to research and extension/outreach professionals through journals and presentations at professional meetings directed 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), the Institute for Food Technologist (IFT), and the American College of Sports Medicine also play an important part in knowledge dissemination. The annual meetings and journals of these organizations are a primary means of disseminating findings from NIFA 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 funded by the NRI. Figure 11 shows support for undergraduate students, graduate students and postdoctoral researchers in terms of total person-years for FY 2006-2009. FY 2008 was the first year for which data are available for undergraduate student support. In order to be tracked, undergraduate involvement in a project must be substantial (e.g., not just washing glassware in a laboratory). The grant writing process, the work and the presentation of results at professional meetings and in journals is a very important part of students' education. In addition, NIFA 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.

- 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. Peer-reviewed journal articles and conference proceedings provide targeted audiences with easy access to research, education and extension activities. In 2008 and early 2009, about 60 peer-reviewed journal publications and 35 oral presentations resulted from NRI competitive grants, Special Grants and formula grants in the areas of KA 703 and KA 704. These are listed in Appendix I. This is not an exhaustive list; it is compiled from final technical reports in the Current Research Information System (CRIS) and from information sent to the program by Project Directors. Educators and practitioners use these publications to

design interventions and develop nutrition education materials for consumers. Public officials also use research findings as a basis for policy changes designed to improve the health of Americans (e.g. Dietary Guidelines for Americans, MyPyramid).

Figure 11: Support for Graduate Students and Postdoctoral Researchers provided by National Research Initiative Competitive Grants under Knowledge Area 703, Nutrition Education and Behavior, FY 2006-2008



- 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. Appendix J lists all of the active Multistate Research projects in nutrition.

<u>Key Outcomes Reported in 2009</u>

- 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))
- **68%** 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),
  - **84%** of adults **bettered** their Food Resource Management (FRM) practices, and
  - **65%** of adults **improved** their Food Safety (FS) practices
  - **73%** of youth **now** eat a variety of foods
  - **63%** of youth **improved** practices in food preparation and food safety
  - **59%** 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)):
  - **95%** of adults reported improved dietary intake, including an **increase** of about 0.8 cup equivalents per day of fruits and vegetables

- The NRI funded a research project at the University of Illinois, Iowa State University and Michigan State University to examine the impact of stress (maternal mental stress, maternal physical stress, household financial stress and family structure stress) on childhood obesity. They found that among children age 10 and under who experienced stress (including stress transferred from their mothers), those who were food secure were more likely to be overweight or at risk of being overweight than children in food insecure households. Children living in food insecure homes may lack the resources to consume "comfort foods" (or food that can be of poor nutritional quality) when they are stressed. As the majority of low-income children in the United States are food secure, the researchers concluded that efforts to alleviate stress, including financial stress, can lead to reductions in childhood overweight. The results are of particular interest to USDA, which has the responsibility for administering nutrition assistance programs that serve low-income children and their families. (*Pediatrics*, September 2008)

- The NRI funded an integrated research/extension project at the University of Oklahoma which showed that parental feeding practices are predictive of general

parenting styles. Working with over 200 parents of first-graders, they categorized parents by their general parenting style and found that in relation to their feeding style: Authoritative parents felt responsible; they monitored what their children ate, modeled healthful eating and felt it was their responsibility to make sure their children were eating healthfully. This style is most likely to be successful in instilling healthful eating behaviors in children. On the other hand, authoritarian parents overly restrict children's eating and pressure them to eat with little regard for the child's preferences. Permissive practices are more indulgent or neglectful, allowing the child to control what, where, and how much they eat. The researchers concluded that interventions to prevent childhood overweight that fail to address underlying parenting styles are unlikely to be successful. (*J Am Diet Assoc.* July 2008*)*

- The NRI funded University of Alaska, Interior Aleutians for an integrated education/extension project called Troth Yeddha'. The diets of Alaska Natives have veered away from tradition increasing in sugars and unhealthy fats to the point that obesity has become a major problem with associated health conditions. The project was to address this problem. One goal was to develop nutrition courses with community extension components for rural health workers in Alaskan communities. The intent was to prepare students to provide nutrition and obesity prevention information to their clients and patients and to prepare them to conduct community outreach activities. In May of 2009 the first seven students graduated and will return to their communities to teach.

- The NRI funded a research project at the Baylor College of Medicine which has provided the only evidence to date showing an effect of food portion size on children's intake beyond a single meal. The results revealed that children do not adequately compensate for increased intake from large portions, such that daily energy intake was significantly (~10%) higher when the size of the main dish at each meal and at a snack was doubled. In agreement with other adult studies, an effect of portion size on daily energy intake was also seen among mothers. Weight status and maternal intake of large portions were uncorrelated with children's intake of large portions suggesting that the effects of food portion size are general and not specific to overweight children or homes where mothers consume large portions. The importance of portion size for energy balance appears to be determined primarily by the extent of children's routine exposure to large portions. Additional research is needed to understand why some children are more susceptible to over-consume large portions than others.(*Psychology and Behavior* 2008)

- A Hatch-funded Multistate Research Fund project involving over time, 12 universities has been looking at parent and household influences on calcium intake among preadolescents. One subproject explored at-home and away-from-home eating patterns influencing Asian, Hispanic, and non-Hispanic white preadolescents' intake of calcium-rich food from a parental perspective. Participants from all groups shared common at-home and away-from-home meal patterns. A lack of time often resulted in negative factors that impacted intake of calcium-rich food and beverages including breakfast on the run, fewer home-prepared or shared family meals, and

more frequent meals eaten away from home. Asian and Hispanic parents indicated eating out less frequently than non-Hispanic white parents. Parents from all groups lacked expectations for their child to drink calcium-rich beverages with meals. The researchers concluded that practical strategies are needed to facilitate intake of calcium-rich food and beverages through more frequent family meals at home and parental expectations for children's intake of calcium-rich beverages with meals.(*J Nutr Educ Behav.* March/April 2008)

- A group of researchers from Iowa State University used a Hatch formula grant to survey Iowa Food Bank participants about food security and health implications. The Iowa Food pantry study was designed to understand barriers to participation in the Iowa Food Assistance Program, levels of food security, and aspects of well-being including health. The analyses of obesity found no direct associations between food insecurity and childhood obesity. However, they found that adult female stress was associated with higher probabilities of a child being at risk of overweight or overweight. Additionally, children in food secure households experiencing higher levels of stress were more likely to be at risk of overweight or to be overweight than children in food insecure households. A policy implication is that reducing childhood overweight is another potential benefit from helping families to avoid economic stress.

- The Small Business Innovation Research program awarded a research project to CommGraphics Interactive, Inc. in FY 2008. The company successfully developed an entertaining video game to increase awareness and self-efficacy as it relates to making healthy food choices and body weight in fifth grade children. The company's objective was to increase awareness and self-efficacy, the precursors to behavior change, using a video game that will be as entertaining as other popular video games to address childhood obesity and overweight. The results revealed there was a 26% increase in the children's awareness of the relationship of healthy food choices and physical activity to body weight and 24% increase in self-efficacy regarding their ability to make healthy food and physical activity choices by playing the game. This new product will supplement community and school interventions to improve healthy life-styles for children and families. A follow-up Phase II grant was awarded in FY 2009.

Section IV: 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 NIFA 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 area is concerned with activities related to healthy lifestyles, including maintenance of social, emotional, mental and physical health. It often involves rural Americans, population groups at risk or the underserved, such as the low-income, older adults or immigrant populations and the factors that promote or hinder healthy lifestyles in these groups.

Healthy lifestyles, health status and provision of health services are worse in rural America for almost any disease or health issue than non rural areas due to the unique aspects of rural health care in particular and rural living in general. More dependence on Medicare coverage limits access to a full range of preventive health care services and a shortage of medical providers and the failure to coordinate providers locally is common. This combined with the social-economic disadvantage of rural areas, geographic isolation, the lack of transportation and harmful lifestyle changes leads to poor indicators of health and welfare.

About one-fifth of the non-metro population has one or more disabilities, is uninsured (under age 65) or has a reported mental health disorder. Higher mortality rates and higher rates of injury and tobacco use are associated with rural living. Obesity and physical inactivity are now more common in low-income and rural populations than ever before in part due to the high cost of and limited access to nutritious foods and the lack of recreational activities. Rural residents are 12-15% more likely to be obese and less physically active than urban residents particularly, those in the South. About one-third of rural children aged 10-17 years are overweight or obese. In addition, many of these children present socio-emotional difficulties and moderate to severe health conditions at an early age.

Of concern too are the out-migration of young adults from and the influx of retiring baby boomers to rural areas. This has led to an older age for remaining residents and the increased demand for health and human services with a workforce specialized in geriatrics. Also contributing to rural population growth are Hispanics. They remain one of the largest and fastest growing minority groups in rural America increasing by over 3 percent per year since 2000. While the migration of many young Hispanics may offer an opportunity to revitalize some rural communities, the influx of this population brings also an increased demand for health and social services.

Whatever the population subgroup, healthy lifestyles and the health care necessary to achieve and maintain them calls for a diverse, culturally sensitive and trained workforce to promote health education as well as access to and availability of appropriate health care systems.

In 2008, 19 projects (5 NRI; 3 Special Grants; 8 Other Extension Grants; 1 3D Grant; and 2 Other Grants) included KA 724 as a classification code. Four of these projects also include KA 704, three include KA 703, one includes KA 704 and one includes KA 701 as classification codes.

KA Key Activities:

- Assess the healthfulness of lifestyles through appropriate analytical methods (2005-2008, NRI, Formula funds)
- Develop standards and guidance on healthy lifestyles to include input to and use of Dietary Guidelines, Physical Activity Guidelines, and Healthy People (2005-2008, NRI, formula funds)
- Develop and disseminate information as to the value of good health for older adults (2006-2008, Rural Health and Safety Education Grant)
- Develop, evaluate and disseminate health-based education programs to increase health literacy and access of information in rural communities (2006-2008, Rural Health and Safety Education Grant)
- Support training of health and allied health professionals or paraprofessionals committed to rural health (2006-2008, Rural Health and Safety Education Grant)
- Dissemination of healthy lifestyles information via eXtension for use by professionals and the public (2006-2008, Funded by eXtension Community of Practice, Caregiving; Funded by eXtension Community of Practice 2007-2008, Family Food and Fitness)

Project Outputs and Outcomes:

Healthy Aging: Rural Health and Safety Education Grant project to communicate teach and demonstrate the benefits of good nutrition and physical fitness for healthy aging in Guam's Mananmko. Nutrition and fitness workshops were conducted bi-weekly over a 6 week period at three designated senior citizens centers. Nutrition pre and post screening were administered and blood pressure, cholesterol and glucose measured with follow-up six months after the workshops. The project team worked closely with a health t and physical fitness consultant throughout the program to ensure the program delivery was executed smoothly.

Outputs

- Modified nutrition education lessons from the *Healthy Eating for Successful Living in Older Adults*™ Manual;
- Physical fitness lessons developed from the *Theraband© First Step to Active Health* Toolkit for use in this study.

Outcomes

- 86% of participants demonstrated gains in skills and knowledge with a score of 9.6/10;
- 88% of the participants improved in selected long-term dietary changes--increased ability to identify and differentiate between healthy and unhealthy foods; increased use of food labels; and increased daily intake of fruits, vegetables, and water;
- 75% of participants used the *MyPyramid* as a guide to make their healthy food choices;
- Participants reported a 100% improvement in physical fitness from primary goals set at the start of program.

Diabetes Detection, Treatment and Prevention: Special Grant multi-state project (Hawaii). Screenings on the Hawaiian islands of Oahu, Maui and Kauai were offered at community sites to the public to assess their risk for diabetes. Participants completed a risk assessment and consent form to have a blood sample drawn for prescreening of A1c. Those individuals with an A1c level at or above 6.0 were referred to a physician and enrolled in the 'On The Road' workshop diabetes. Additional screenings for blood pressure, microalbumin and LDL cholesterol were completed and health and nutrition education provided. The goal was to help people understand five medical tests that measure indicators of diabetes health and to provide educational opportunities for people to learn to manage diabetes.

Output

- 58 hemoglobin A1c screening and educational sessions (nutrition, diabetes management and diabetes prevention) events were held for the Hawaiian public and employee groups--at health fairs, shopping centers, grocery stores, community walks, community colleges, and worksites.

Outcome

- 2,050 adults were screened for hemoglobin A1c; 695 had results at indicative of diabetes;
- One-third of those with a AIc > 6.0 were diagnosed with diabetes;
- Partnerships with numerous community agencies (i.e. Target Stores and Community Colleges) to reach residents in under-served areas and promote diabetes awareness.

Healthy Aging: Rural Health and Safety Education Grant project: Rural residents have significantly poorer health (including mental health) status compared to urban residents. Therefore, there is a need for a culturally-sensitive population level approach to health management of rural residents that expands on the chronic-care model. A Mental Healthiness Aging Initiative (MHAI) intervention program was created and tested in Kentucky to promote and educate County Extension Agents, community partners, and family members about the role of mental health in old age and to utilize a tool kit of

mental health resources to aid with identification and management of mental health problems among elders.

Output:

- A peer reviewed educational curriculum, Aging in Kentucky: A Healthy State of Mind, was developed and printed:
    - Aging in Kentucky: A Healthy State of Mind Facilitators Guide, Participant Handout
    - A PALS Handout, Checklist of Protective Factors for Mental Health in Aging
    - Seven Case Studies
    - Pre-test and Post-Test for Evaluation for the educational intervention
    - A Tool Box of community regional and state resources.

Output:

- 2 rural community hospitals submitted and received a grant from the Foundation for a Healthy Kentucky to collaborate in providing mental health services in the counties involved in the pilot;
- 10 Extension agents were trained on the MHAI curriculum, resulting in an increased knowledge about mental health in the elderly; and increased confidence in their ability to identify mental health issues and direct someone to get help.

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 NIFA 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; many aspects intersect with human nutrition as it relates to children, families and older adult lifecycle development and well-being. NIFA 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 2008, 2 projects 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 NIFA 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 2008, 11 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 NIFA 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 2008, 10 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 V: 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 Summary Response

A commentary titled "USDA NIFA' 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 NIFA is strategically directed and uniquely positioned to address many of these challenges through effective research, education, and Extension activities. Additionally, a nutrition NPL was assigned as the representative to the Federal Interagency Task Force for the Older American Act, Title VI to provide guidance and exchange information on the nutrition and health needs of older adults.

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. Five 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.

Movement toward optimal integration of research, education, and Extension, is reflected in the recently approved Multi-State Research project – NC1169: "EFNEP Related Research, Program Evaluation and Outreach," the results of which may have implications for changes to programming and evaluation methodology delivered.

Many projects funded by competitive grants serve to coordinate with and inform the agency's extension programs. For example, two projects funded by the NRI Human Nutrition and Obesity program with FY 2008 funds will provide valuable information for EFNEP on evaluation of the EFNEP youth component and feasibility of the addition of a physical activity component to EFNEP.

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 Summary Response

Because of the seriousness of the obesity epidemic, its multidisciplinary nature and the multifaceted strengths and expertise of the NIFA 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.

The development of a new RFA for NRI/AFRI each year gives the portfolio an opportunity to refine its focus. The subsection on Bioactive Food Components for Optimal Health has narrowed priorities to promotion of bone health and prevention on inflammation. Limited funds mandated that efforts be focused. These two areas were selected based on stakeholder input. The subsection on Human Nutrition and Obesity has retained its focus on behavior as it relates to obesity prevention. The majority of the funding is used for integrated projects. However, the smaller portion of the funding that was used for single-function research projects has been shifted to single-function extension projects which are intended to provide opportunities for the expansion of interventions shown to be effective. This is consistent with our desire to focus even more on finding solutions rather than further defining the problem

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 Summary Response
Actions to enhance, support and integrate research, education and extension in support of the NIFA 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:

The NRI/AFRI subsection on Human Nutrition and Obesity has continued to focus on obesity prevention because obesity has become an even greater problem. Priorities for the NRI/AFRI subsection on Bioactive Food Components for Optimal Health have been focused based on stakeholder input. Under AFRI, there is also now a Rapid Response Food and Agricultural Science for Emergency Issues program to allow for flexibility to respond to urgent emerging issues.

Capitalizing on the synergy gained by strengthening coordination among the various NIFA programs to focus on obesity has resulted in both the SBIR and the National Needs Fellowship Grants specifically citing obesity in recent RFAs.

Ongoing actions are in place to promote eXtension in support of the NIFA 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.

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.

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 Summary Response

NIFA has worked closely with HHS in support of *Healthy People 2020: Health Objectives for the Nation*. Human nutrition NPLs served as reviewers of both established and developmental *Healthy People 2020* objectives relating to obesity/overweight, physical activity, and youth indicators of health. They represent the thinking of national as well as state constituents and their review and feedback to HHS committees reflect thoughtful assessments of major risks to health and wellness, public health priorities, and emerging issues related to our nation's health. In addition, one NPL is a member of a Youth workgroup subcommittee charged to determine objectives related to the promotion of healthy development, healthy behaviors and to the creation of social and physical environments that promote good health for youth. This is noteworthy in that this is the first time *Healthy People* reflects the integration of health determinants and disease/conditions; thereby, promoting the notion that health is not the responsibility of the health sector alone, strengthening the need for multi-disciplinary expertise and approaches within this portfolio.

For the NRI/AFRI subsection on Human Nutrition and Obesity the majority of the funding goes to integrated projects - $10M of the total $11M available. Beginning in FY 2008, applicants for NRI/AFRI integrated project awards have been required to provide a logic model to demonstrate how the project is integrated. Additionally, no more than two-thirds of the budget for an integrated project can be allocated to any single component (research, education or extension).

There are 8 Multistate Research Fund projects in nutrition (NC1028: Promoting healthful eating to prevent excessive weight gain in young adults; NC1039: Omega-3 polyunsaturated fatty acids & human health & disease; NC1169: Development Committee for EFNEP Related Research and Outreach; NE1023: Improving Plant Food (Fruit, Vegetable and Whole Grain) Availability and Intake In Older Adults; W1005: An Integrated Approach to Prevention of Obesity in High Risk Families; W2003: Parent and household influences on calcium intake among preadolescents; W2002: Nutrient Bioavailability--Phytonutrients and Beyond; W2122: Beneficial and Adverse Effects of Natural, Bioactive Dietary Chemicals on Human Health and Food Safety. The first seven of these projects are integrated.

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' 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.

2006 Recommendation
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.

Portfolio Summary Response
In FY 2009, the America On the Move (AOM) Advisory Group was expanded to increase multidisciplinary (nutrition, health, exercise science, low income and diverse audiences) representation and to include a member from each of the partnership states. In addition, the AOM/ NIFA/CES partnership was promoted at the Priester Conference to an audience from several health related disciplines. Fourteen Land Grant Institutions/states are full partners with state plans for program implementation in place and many other states use partnership educational resources. This partnership effectively uses the nationwide network of county extension educators and educators to promote health through walking and other types of physical activity programs.

NIFA is collaborating with other agencies and organizations, both public and private, to maximize financial resources and cross level expertise. This is an ongoing effort and offers the potential for promising and sustained outcomes related to the nutrition portfolio. NIFA 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, NIFA 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/NIFA RFAs and PI meetings in the future.

Under AFRI, a new program has been added for multidisciplinary graduate education and training in the area of functional foods for health. Projects funded by the AFRI Human Nutrition and Obesity program continue to be multidisciplinary in nature, and involve

research, extension and industry professionals with expertise in nutrition, human development, education, communication, food science, public health, medicine, economics and technology.

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 Summary Response
Appendix I has been updated to list recent publications from projects funded by the Nutrition and Healthier Food Choices portfolio. The list has been expanded to provide separate listings of publications in peer-reviewed journals; book chapters and monographs; theses and dissertations; presentations at professional meetings; and nutrition education materials.

The EFNEP Research Committee has compiled a bibliography of publications from the EFNEP program to ensure that all publications have been cited and that new publications continue to be added. This document is available at
http://www.NIFA.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 Summary Response

Stakeholders are in a unique position to inform NIFA of their needs and interests and NIFA has made painstaking efforts to develop mechanisms for soliciting and implementing input. For example, NIFA 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 NIFA 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.

Additionally, stake holder feedback has been solicited, reviewed, and incorporated into recommendations for development of a web-based reporting system for EFNEP, 1890 EFNEP capacity building, and Land-Grant University SNAP-Ed Administrative leadership decisions. Stakeholders have been kept informed of website and other programmatic developments for EFNEP and SNAP-Ed through electronic communication, regional and national conference calls, and interactive BREEZE sessions.

For both the Food Components for Optimal Health and the Human Nutrition and Obesity sections of the NRI/AFRI, stakeholder input is sought internally from everyone in NIFA and externally from all USDA and HHS agencies that play a role in nutrition through USDA and HHS Nutrition Coordinating Committees. A request for stakeholder input is sent to all nutrition department chairs and to Extension food and nutrition specialists and agents. A list of stakeholder input is available on the web at: http://www.NIFA.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.

<u>2006 Recommendation</u>
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.

<u>Portfolio Summary Response</u>
There is a combined logic model for nutrition on p12.

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.

<u>2006 Recommendations</u>
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.

<u>Portfolio Summary Response</u>
Unit administrators and representative NPLs have met with other funders regarding discrepancies in data collection. Immediate solutions are not forthcoming. However, a

dialogue has been initiated. Current efforts to move NEERS to a web-based system have taken into account reporting discrepancies within NIFA, and the CNE Logic Model has been identified as one means of helping to bridge these differences.

Development of a system, such as is recommended is a multi-year undertaking. The EFNEP leadership team has worked closely with partner universities to strengthen the quality and accuracy of EFNEP reporting, with other units within the Agency to streamline information gathering, and with an ad hoc committee and other stakeholders to better understand present and future needs and opportunities in order to put forward a reporting proposal that works on multiple levels and across the respective partnerships.

An Evaluation subcommittee has been established under the newly established Nutrition and Health Committee for Planning and Guidance. This group has begun to work on developing impact indicators that would be suitable for use with Cooperative Extension System nutrition education programs.

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.

<u>2006 Recommendations</u>

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.

<u>Portfolio Summary Response</u>

Several staffing changes have occurred recently. Dr. Caroline Crocoll is Acting Director of the Nutrition and Family Sciences Division. The Maternal-Child Health position formerly co-located at the USDA ARS Children's Human Nutrition Research Center at Baylor College of Medicine has not been filled. The agency leadership has decided to consolidate this position with the vacant position for a National Program Leader for Extension in nutrition. This new position has been advertised. Additional re-organization will occur as the agency transitions to become the National Institute for Food and Agriculture in fall, 2009.

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 Summary Response
Issues regarding collection of data from state plans of work and annual reports have been resolved. More information from projects funded via formula grants have been presented in the 2009 update.

Members of the portfolio team currently serve as NPL State Liaisons to nine states (Arizona, Colorado, Massachusetts, Minnesota, Ohio, Delaware, New Jersey, Tennessee, and West Virginia) which provide opportunities for in-depth analysis of programming efforts and challenges.

Section V: Self-Assessment

Table 7: Portfolio Scoring

	External Panel	2007	2008	2009
Relevance				
1. Scope	2	2.5	2.5	2
2. Focus	3	3	3	3
3. Contemporary and/or Emerging Issues	3	3	3	3
4. Integration	2	2	2	2.5
5. Multi-disciplinary Balance	2	2	2	2
Quality				
1. Significance of Findings	3	3	3	3
2. Stakeholder/ Constituent Inputs	3	3	3	3
3. Alignment with Current State of Science	3	3	3	3
4. Appropriate and/or Cutting-Edge Methodology	3	3	3	2.5
Performance				
1. Portfolio Productivity	2	2	2.5	2.5
2. Portfolio Comprehensiveness	2	2.5	2.5	2
3. Portfolio Timeliness	3	3	3	3
4. Agency Guidance	3	3	3	2
5. Portfolio Accountability	2	2	2	2.5
Overall Score	***86**	***90**	***91**	***86**

* The overall score is based on weighted calculations

2009 Rational for Score Change

The internal annual review score for the Nutrition and Healthier Food Choices Portfolio was 86. This is a decrease from the past two years and is comparable to the score of 86 provided by the external review team in spring 2006. The change in the score is justified by statements made by the National Program Leaders as follows:

Scope: Decreased from 2.5 to 2.0.
Rationale: The internal review team felt the decrease was justified because of personnel changes. Several National Program Leaders have left the agency or retired and positions have been combined or not filled. For example, the external panel noted in 2006 that having a National Program Leader for Maternal-Child Health located at the USDA ARS Children's Nutrition Research Center at Baylor College of Medicine was a strength of the nutrition portfolio. This position has since been re-located to Washington DC and combined with another position. Therefore we are currently unable to provide leadership in maternal and child health at a time when childhood obesity is a major concern. The National Program Leaders concluded that the scope of the program is satisfactory, but not exceptional.

Integration: Increased from 2 to 2.5.
Rationale: The internal review team justified the increase because of the improvement in the degree of integration in projects funded by the Agriculture and Food Research Initiative (AFRI) Human Nutrition and Obesity Program. The proportion of projects submitted to this program that were ranked by the external peer review panel as Outstanding or High Priority has increased from 16 percent in FY 2006 to 26 percent in FY 2008. Additionally, this program is funding projects that help serve the needs of other portfolio programs. For example, in FY 2008, the program funded two projects that integrate with EFNEP goals – one to develop an evaluation instrument for the youth EFNEP component, and another to develop and evaluate materials to incorporate physical activity into the EFNEP curriculum.

Appropriate and/or Cutting-Edge Methodology: Decreased from 3 to 2.5.
Rationale: The internal review team justified the decrease in score because methods we have been using are good, but the portfolio has not always been able to keep up with new requirements. For example, evaluation of Extension programs is now routinely expected in state Annual Reports, but the agency has no personnel or funds to devote to an effort to develop an evaluation system for Extension nutrition programming.

Portfolio Comprehensiveness: Decreased from 2.5 to 2.
Rationale: Again, the internal review team justified the decrease because of the losses in personnel experienced this year (see explanation above in Scope). It is simply not possible to continue to provide leadership for a highly comprehensive portfolio in the long term with the current level of vacant positions.

Agency Guidance: Decreased from 3 to 2.
Rationale: It was the consensus of the internal review team that agency leadership has been distracted by the transition from CSREES to NIFA. Additionally, during this time, National Program Leader positions have been combined or left vacant and leadership is not being provided in key areas, such as maternal-child health.

Portfolio Accountability: Increased from 2 to 2.5
Rationale: The internal review team justified the increase in portfolio accountability because EFNEP has now transitioned to using grants.gov. EFNEP is a major portion of the portfolio's funding, and the use of grants.gov makes it easier to document and account for these funds.

Appendix A – External Panel Recommendations to the Agency

In response to directives from the Office of Management and Budget (OMB) of the President, NIFA implemented the Portfolio Review Expert Panel (PREP) process to systematically review its progress in achieving its mission. Since this process began in 2003, 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 NIFA is addressing the expert panel's recommendations. These internal reports are crafted to specifically address the issues raised for a particular portfolio; however, despite the fact that 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 NIFA 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 NIFA often do not highlight the contributions made by NIFA.

Multiple panel reports suggested NIFA better monitor reports of its funding and ensure that the agency is properly credited. Many panelists were unaware of the breadth of NIFA activities and believe their lack of knowledge is partly a result of NIFA not receiving credit in publications and other material made possible by NIFA funding.

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

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

Second, the Agency is in the process of implementing the "The agency reporting system " concept. The agency reporting system will allow for the better integration, reporting and publication of NIFA material on the web. In addition, the new AREERA Plan of Work (POW) and Annual Report (AR) are fully functional. The agency requires a POW and AR on the four major research and extension formula funds; Hatch, Evans-Allen, Smith-Lever 3b&c, and 1890 Extension Programs. The reporting format and means of submission were substantially revised, they were restructured using an outcome-based, logic model design. They are collecting reports electronically via the internet using a database system. The purpose of this revision was not only to reduce the burden imposed on collecting the Plan of Work (POW) and Annual Report of Accomplishments (AR), but

to make the information collected usable for NIFA program leadership and portfolio evaluation. Additional benefits were realized, the information collected can be easily analyzed and assembled into a national report on the POW and AR for these formula funded programs.

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. Questions revolving around long-term planning between the entities were common as were ones that asked how the NIFA mission and goals were being supported through its partnership with universities and vice versa.

Issue 2: Agency Response:
NIFA has taken several steps to strengthen its relationship with university partners. First, to the extent possible, implementing partners will be attending the NIFA strategic development exercise which is intended to help partners and NIFA fully align what is done at the local level. Second, NIFA has realigned the state assignments for its National Program Leaders (NPLs). Each state is now assigned to one specific NPL. By reducing the number of states on which any individual NPL is asked to concentrate and assigning and training NPLs for this duty, better communication between state and NPLs should occur.

Finally, several trainings that focused on the POW were conducted by NIFA in geographic regions throughout the country. A major goal of this training was to better communicate NIFA goals to state leaders which will facilitate better planning between the universities and NIFA.

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. Understanding the specific job functions of NPLs was something that helped panelists in the review process. 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:
NIFA 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 NIFA requires of its NPLs, quick hires are not always possible. Often, NIFA is unable to meet the salary demands of those it wishes to hire. It is essential that position gaps be 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. NIFA has recognized the need for these approaches and has undertaken steps to remedy this situation. NIFA has recently mandated that up to twenty 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. Finally, 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:
Outcomes that come about as a result of extension are, by the very nature of the work, more difficult to document than the outcomes of a research project. NIFA has recently shuffled its strategy of assigning NPLs to serve as liaisons for states. In the past, one NPL might serve as a liaison to several states or a region comprised of states. Each state will be assigned a specific NPL and no NPL will serve as the lead representative to more than one state. This will ensure more attention is paid to extension activities.

In addition NIFA also has been in discussion with partners and they have pledged to do their best to address this issue. The new POW will make extension-based results and reporting a priority. Placing heavy emphasis on logic models by NIFA will have the effect of necessitating the inclusion of extension activities into the state's POWs. This, in turn, will require more reporting on extension activities and allow for improved documentation of extension impact.

Issue 6: Program Evaluation
Panelists were complimentary in that they saw the creation of the Office of Planning and Accountability 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 firsthand that NIFA 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 NIFA and program evaluation is an essential component of effective management. In 2003 the PREP process and subsequent internal reviews were implemented. Over the past three years fourteen portfolios have been reviewed by expert panel members and each year this process improves. NPLs are now familiar with the process and the staff of the Planning and Accountability unit 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 NIFA 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 Office of Planning and Accountability 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 Office of Planning and Accountability will be working with NPLs to deliver training to those in the field.

The Office of Planning and Accountability is working more closely with individual programs to ensure successful evaluations are developed, implemented and the data analyzed. Senior leadership at NIFA has begun to embrace program evaluation and over the coming years NIFA 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.

In addition to process developed within the Office of Planning and Accountability, NPLs have discussed methods for improved post award management and reporting. Many Agency Requests for Applications (RFAs) are now encouraging program evaluation and post award reporting of outcomes and impacts of funded activities. Steps are being taken to providing an electronic database that will make it easier to report outcomes and impacts of NIFA funded activities anytime after Agency funding for the project has ended.

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 NIFA 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 NIFA and the Agency has been proactive in promoting the use of logic models to its state partners. Recent agency-wide 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

The system is now operational and states were required to begin using it by June of 2006. By requiring the inclusion of the data components listed above states are in essence, creating a logic model that NIFA believes will help improve both program management and outcome reporting.

OPA conducted a recent training seminar regarding logic model concerns. In October and November of 2005 four separate training sessions were held in Monterrey, California, Lincoln, Nebraska, Washington D.C. and Charleston, South Carolina. More than 200 people representing land-grant universities attended these sessions where they were given training in logic model creation, program planning, and evaluation. In addition, two training sessions were provided to NPLs in December 2005 and January 2006 to further familiarize them with the logic model process. Ultimately it is hoped these representatives will pass on to others in the Land-Grant system what they learned about logic models thus creating a network of individuals utilizing the same general approach to strategic planning. These materials also have been made available to the public on the NIFA website.

As a result of OPAs efforts to inform and educate agency staff about the logic model, NPLs have started implementing logic model use in RFAs, particularly in AFRI. These logic models are used as a planning tool for agency funded projects. RFA applicants, reviewers and awarders are able to grasp the progression of a proposed activity and define expected outputs, outcomes and impacts.

Appendix B – NIFA Funding Table for Primary Knowledge Area

NIFA Only Funding tables provide details of agency specific funding for a five fiscal year span for primary KA activities. The funding sources are agency ONLY funding sources. The grand total of these funding sources equals NIFA ADMIN funding that is included in the Overall Funding tables. Below are definitions for NIFA funding sources identified in the following funding tables.

- Hatch (HATCH) formula funds are allocated to the States, for the purpose of conducting agricultural research by the State Agricultural Experiment Stations. Hatch dollars are reported as expenditures in the following funding tables.

- McIntire-Stennis (MC-STN) are funds allocated to the States, for the purpose of conducting forestry research by schools of forestry, land-grant colleges, and State Agricultural Experiment Stations. McIntire-Stennis dollars are reported as expenditures in the following funding tables.

- Evans-Allen funds are allocated to the eligible institutions for support of agricultural research by the 1890 Colleges and Tuskegee University. These dollars are reported as expenditures to the Current Research Information System.

- Animal Health and Disease Program formula funds are allocated to eligible institutions for support of livestock and poultry disease research. These dollars are reported as expenditures to the Current Research Information System.

- Special Research Grants funds are awarded to eligible institutions for the purpose of conducting research to facilitate or expand food and agricultural research programs. These dollars are obligated funds reported in the Current Research Information System.

- National Research Initiative (NRI) Competitive Grants awarded to the eligible institutions for the purpose of conducting research emphasizing natural resources and the environment; nutrition, food quality, and health; plant systems; animal system; rural development, markets, and trade; and processing for value-added products. These dollars are obligated funds reported in the Current Research Information System. These dollars are obligated funds reported in the Current Research Information System.

- Small Business Innovation Research (SBIR) Program grants awarded to eligible institutions for the purpose of supporting high quality research proposals containing advanced concepts related to research on forests and related resources; plant production and protection; animal production and protection; air, water and soils; food science and nutrition; rural and community development; aquaculture; and industrial applications. These dollars are obligated funds reported in the Current Research Information System.

- OTHER NIFA funds are NIFA Administered funding programs not included in Hatch, McIntire-Stennis, Evans-Allen, Animal Health and Disease, Special Research Grants, National Research Initiative, or Small Business Innovation Research funding programs. These include cooperative agreements, and all other agency administered research grants awarded either competitively or non-competitively. These dollars are obligated funds reported in the Current Research Information System.

- Smith Lever 3(d) provides the opportunity for 1862 and 1890 Land-Grant Institutions, including Tuskegee University and West Virginia State University, and the University of the District of Columbia to compete for and receive extension funds. Smith Lever 3(d) funds became competitive in 2008, prior to that it was a non-competitive extension funding source for the previously mentioned institutions. These dollars are obligated funds reported in the Current Research Information System.

- Smith Lever 3(b) and (c) funds provide funding for agricultural extension programs at 1862 Land-grant universities. These dollars are reported as expenditures in the Plan of Work Annual Report.

- 1890 funds provide funding for agricultural extension programs at 1890 Land-grant universities. These dollars are reported as expenditures in the Plan of Work Annual Report.

- Smith-Lever 3(d) EFNEP funds are formula funds in support of community based low-income nutrition education conducted through 1862 and 1890 land-grant institutions, and the University of the District of Columbia. These dollars are obligated funds reported in the EFNEP Formula Grant Opportunity (FGO).

KA 701: Nutrient Composition of Food NIFA Funding						
Combined Research and Extension Dollars						
Formula -Expenditures/Grant-Obligations in Thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
Hatch	481	430	383	589	1,308	3,191
McIntire-Stennis	4	4	0	0	0	8
Evans Allen	512	548	666	639	796	3,161
Animal Health	0	0	0	0	0	0
Special Grants	385	1,183	1,453	0	1,855	4,876
NRI Grants	209	81	999	463	1,021	2,773
SBIR Grants	80	0	71	80	16	247
Other NIFA	307	473	590	105	308	1,783
Other Smith-Lever 3(d)	*NA*	*NA*	*NA*	0	0	0
Total Reported in CRIS	1,978	2,718	4,162	1,876	5,304	16,038
Smith-Lever 3(b) and (c)	*NA*	*NA*	*NA*	409	551	960
1890 Extension	*NA*	*NA*	*NA*	108	132	240
Total Reported in POW Annual Report	*NA*	*NA*	*NA*	517	683	1,199
Smith-Lever 3(d) - Expanded Food and Nutrition Education Program (EFNEP)	0	0	0	0	0	0
Total (NIFA Admin)	1,978	2,718	4,162	2,393	5,987	17,238

NA - data isn't available

KA 702: Requirements and Function of Nutrients and Other Food Components NIFA Funding						
Combined Research and Extension Dollars						
Formula -Expenditures/Grant-Obligations in Thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
Hatch	2,296	2,401	2,688	3,046	4,276	14,707
McIntire-Stennis	1	0	0	0	0	1
Evans Allen	1,013	1,030	802	317	836	3,998
Animal Health	9	10	2	2	2	25
Special Grants	2,651	2,248	2,169	0	1,316	8,384
NRI Grants	1,347	6,337	5,980	2,375	2,579	18,618
SBIR Grants	0	80	0	0	80	160
Other NIFA	0	871	612	194	682	2,359
Other Smith-Lever 3(d)	*NA*	*NA*	*NA*	10	10	21
Total Reported in CRIS	7,317	12,977	12,251	5,946	9,781	48,272
Smith-Lever 3(b) and (c)	*NA*	*NA*	*NA*	1,371	1,702	3,073
1890 Extension	*NA*	*NA*	*NA*	252	321	573
Total Reported in POW Annual Report	*NA*	*NA*	*NA*	1,623	2,023	3,646
Smith-Lever 3(d) - Expanded Food and Nutrition Education Program (EFNEP)	0	0	0	0	0	0
Total (NIFA Admin)	7,317	12,977	12,251	7,569	11,804	51,918

NA - data isn't available

KA 703: Nutrition Education and Behavior NIFA Funding						
Combined Research and Extension Dollars						
Formula -Expenditures/Grant-Obligations in Thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
Hatch	1,166	1,183	1,022	1,433	2,130	6,934
McIntire-Stennis	0	0	0	0	0	0
Evans Allen	825	802	885	1,019	1,015	4,546
Animal Health	0	0	0	0	0	0
Special Grants	640	676	464	0	303	2,083
NRI Grants	7,746	6,214	8,086	6,337	10,182	38,565
SBIR Grants	160	592	0	80	240	1,072
Other NIFA	342	1,795	1,519	1,349	1,523	6,528
Other Smith-Lever 3(d)	*NA*	*NA*	*NA*	471	491	962
Total Reported in CRIS	10,879	11,262	11,975	10,689	15,884	60,689
Smith-Lever 3(b) and (c)	*NA*	*NA*	*NA*	10,835	11,584	22,420
1890 Extension	*NA*	*NA*	*NA*	1,147	1,260	2,408
Total Reported in POW Annual Report	*NA*	*NA*	*NA*	11,983	12,845	24,827
Smith-Lever 3(d) - Expanded Food and Nutrition Education Program (EFNEP)	26,029	29,150	30,864	31,599	32,568	150,210
Total (NIFA Admin)	36,908	40,412	42,839	54,271	61,297	235,726

NA - data isn't available

KA 704: Nutrition and Hunger in the Population NIFA Funding						
Combined Research and Extension Dollars						
Formula -Expenditures/Grant-Obligations in Thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
Hatch	*NA*	18	18	121	146	303
McIntire-Stennis	*NA*	0	0	0	0	0
Evans Allen	*NA*	0	0	18	14	32
Animal Health	*NA*	0	0	0	0	0
Special Grants	*NA*	0	86	0	0	86
NRI Grants	*NA*	0	0	500	295	795
SBIR Grants	*NA*	0	0	0	0	0
Other NIFA	*NA*	0	43	24	749	817
Other Smith-Lever 3(d)	*NA*	*NA*	*NA*	48	65	112
Total Reported in CRIS	*NA*	18	148	710	1,269	2,145
Smith-Lever 3(b) and (c)	*NA*	*NA*	*NA*	838	1,186	2,024
1890 Extension	*NA*	*NA*	*NA*	88	66	154
Total Reported in POW Annual Report	*NA*	*NA*	*NA*	926	1,252	2,179
Smith-Lever 3(d) - Expanded Food and Nutrition Education Program (EFNEP)	26,029	29,150	30,864	31,599	32,568	150,210
Total (NIFA Admin)	26,029	29,168	31,012	33,235	35,089	154,533

NA - data isn't available

Appendix C – All Known Funding Table for Primary Knowledge Areas

Overall Funding tables provide financial information regarding outside funding sources and their contribution to agency activities, for a five fiscal year span. The grand total of these funding sources amounts to the total funding for agency activities, including internal and external funding.

- NIFA ADMIN funds are expenditures of formula grant and other grant funding administered by NIFA and distributed to the State Agricultural Experiment Stations (SAES) and Other Cooperating Institutions (OCI). The programs included are Hatch, McIntire Stennis, Evans Allen, Animal Health, Special Grants, Competitive Grants, Small Business Innovation Research Grants, Other NIFA grant, Smith-Lever 3(d), Smith-Lever 3(b) and (c), and 1890 Extension programs.

- Other USDA funds are expenditures of funds received by the SAES and other cooperating institutions from contracts, grants, or cooperative agreements, with one of the USDA research agencies other than NIFA.

- Other Federal (FED) funds are expenditures of funds by USDA agencies, the SAES and other cooperating institutions received from federal sources, outside of USDA, through contracts, grants, and cooperative agreements directly with other federal agencies.

- State Appropriations (APPR) funds are expenditures of funds by the SAES and other cooperating institutions received from sources outside of the federal government. Direct appropriations from individual state governments.

- Non-NIFA Funding – FSNE Land-grant university obligations – are state/local public and private dollars that have been committed in support of SNAP-Ed/FSNE. An equal or lesser amount committed by FNS from SNAP administrative dollars is not reflected in these figures.

- Supplemental Nutrition Assistance Program – Education (SNAP-Ed) - SNAP-Ed is a federal/state partnership that supports nutrition education for persons eligible for the Supplemental Nutrition Assistance Program (SNAP). State agencies that choose to conduct nutrition education through their Supplemental Nutrition Assistance Program, are eligible to be reimbursed for up to one half of their SNAP-Ed costs by the USDA Food and Nutrition Service (FNS). State and local funding comes primarily from land-grant institutions which contract with SNAP agencies to deliver SNAP-Ed.

- OTHER NON-Federal (FED) funds are expenditures of funds by USDA agencies, the SAES and other cooperating institutions received from sources outside of the federal government. Sources include the sale of products (self generated), industry grants, and miscellaneous non federal sources

KA 701: Nutrient Composition of Food Overall Funding						
Combined Research and Extension Dollars						
$ in the thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
NIFA Admin	1,978	2,718	4,162	2,393	5,987	17,238
Other USDA	345	223	76	76	283	1,003
Other Federal	1,170	713	717	693	709	4,002
State Appr.	3,387	2,777	2,321	2,741	3,777	15,003
Other Non-Fed	1,302	1,315	1,324	1,154	1,931	7,026
Total	8,182	7,746	8,602	6,539	12,687	43,756

KA 702: Requirements and Function of Nutrients and Other Food Components Overall Funding						
Combined Research and Extension Dollars						
$ in the thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
NIFA Admin	7,317	12,977	12,251	7,569	11,804	51,918
Other USDA	2,581	1,876	2,038	1,751	1,492	9,738
Other Federal	15,675	16,619	19,783	15,142	15,458	82,677
State Appr.	16,355	16,687	18,033	17,908	18,409	87,392
Other Non-Fed	13,709	13,761	14,600	12,784	15,076	69,930
Total	55,636	61,921	66,705	53,532	62,239	300,033

KA 703: Nutrition Education and Behavior Overall Funding						
Combined Research and Extension Dollars						
$ in the thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
NIFA Admin	36,908	40,412	42,839	54,271	61,297	235,726
Other USDA	476	379	358	599	743	2,555
Other Federal	2,158	2,352	2,151	3,295	2,822	12,778
State Appr.	4,223	4,986	5,576	8,426	9,750	32,961
Other Non-Fed	1,445	2,312	1,745	5,529	4,253	15,284
Non-CSREES Funding – SNAP-Ed* (Land-Grant University Partner obligations)	57,846	50,332	55,016	62,543	70,750	296,486
Total	103,056	100,773	107,685	134,663	149,614	595,790

KA 704: Nutrition and Hunger in the Population Overall Funding						
Combined Research and Extension Dollars						
$ in the thousands						
Funding Sources	**FY 2004**	**FY 2005**	**FY 2006**	**FY 2007**	**FY 2008**	**Total**
NIFA Admin	26,029	29,168	31,012	33,235	35,089	154,533
Other USDA	n/a	0	0	0	2	2
Other Federal	n/a	0	0	0	851	851
State Appr.	n/a	29	127	350	318	824
Other Non-Fed	n/a	0	2	87	433	522
Non-CSREES Funding – SNAP-Ed* (Land-Grant University Partner obligations)	57,846	50,332	55,016	62,543	70,750	296,486
Total	83,875	79,529	86,157	96,215	107,443	453,218

NA - data isn't available

***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)	The Expanded Food and Nutrition Education Program (EFNEP) is a nutrition education extension program which is delivered through 1862 and 1890 Land-Grant Universities. It is designed to assist limited-resource audiences in acquiring the knowledge, skills, attitudes, and changed behavior necessary for nutritionally sound diets, and to contribute to their personal development and the improvement of the total family diet and nutritional well-being. It is available to families and youth across the United States and in the 6 U.S. territories.
Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program	The Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program provides grants 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.
Supplemental Nutrition Assistance Program - Education (SNAP-Ed); known as Food Stamp Nutrition Education Program – Education (FSNE) prior to 2009	The Supplemental Nutrition Assistance Program - Education Program (SNAP-Ed) is a nutrition education program for persons eligible for SNAP. Conducted in cooperation with the state SNAP/Food Stamp Office. Funded by the Food and Nutrition Service, universities, and other

	state and local partners. NIFA provides leadership to the universities, establishes collaborative relationships, and facilitates communication among federal state, and local partners.
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.
NRI Section 31.0 Bioactive Food Components for Optimal Health	The primary objective of the Bioactive Food Components for Optimal Health Program is to support research to improve our understanding of the role of foods and their biologically active components in promoting health.
NRI Section 31.5 Human Nutrition and Obesity	Research and Integrated projects funded by the Human Nutrition and Obesity 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.
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.
Rural Health and Safety Education Program	The Rural Health and Safety Education Program focuses 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 to older individuals and their families.
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.

* 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**
American College of Sports Medicine-American Fitness Index	Non Federal Organization
Administration of Aging, Federal Interagency Taskforce on Older Americans	Non-USDA Federal Agency
Agriculture Research Service	USDA Federal Agency
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
Dairy Management, Inc.	Non Federal Organization
Economic Research Service (ERS)	USDA Federal Agency
FDA Office of Women's Health	Non-USDA Federal Agency
Farm-To-School	USDA and non-USDA Federal Agency
Farm to Table (marketing network in NM, UT, AZ and CO)	Non Federal Organization
Federal Public Health and Recreation Working Group (includes USDA)	Non Federal Organization
First Nation's Institute	Non Federal Organization
Food and Nutrition Service	USDA Federal Agency
The Food Project (Youth centered urban Agriculture enterprise)	Non Federal Organization
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
(NIH) National Institute of Aging	Non-USDA Federal Agency
Occidental College	Non Federal Organization
World Hunger Year	Non Federal Organization
Southern Sustainable Agriculture Working Group	Non Federal Organization

Appendix F - Program Evaluations

The Expanded Food and Nutrition Education Program (EFNEP) is committed to providing high quality nutrition education to low-income families and low-income youth. Each year NIFA collects data on its more than 500,000 program participants to assess program effectiveness. EFNEP program participants are given pre- and post- tests when they enter and exit the program. Adults complete a behavior checklist questionnaire and a diet recall. Youth respond to pre- and post- questions. The same methodology is used by all 75 EFNEP institutions. This allows EFNEP to consistently demonstrate strong programmatic impact and effectiveness.

The Behavior Checklist is a questionnaire comprised of 10 behavior-based questions related to Nutrition Practices, Food Resource Management and Food Safety. Responses are captured using a likert-type scale. Responses between entry and exit are compared to evaluate the impact of programming on participant behavior (see "Portfolio Outcomes" on p.14or "Key Outcomes Reported in 2009" on p.43 for impact data).

The Diet Recall is a tool used to capture details related to a participant's diet. Program participants self-report what they consumed, how much they consumed and when they consumed it for a 24-hour period. Using the MyPyramid Foods Database, data is analyzed to determine food group, nutrient and caloric intake. Entry and exit data are compared to evaluate the impact of programming on dietary intake (see "Portfolio Outcomes" on p.14 or "Key Outcomes Reported in 2009" on p.43 for impact data).

Appendix G – List of Stakeholder Groups Consulted:

Group	Year Consulted
ARS and Dairy Management Inc. regarding formation of National Dairy Research Program	2009
Institute of Food Technologists	2009
American Society for Nutrition	2009
Extension FCS Administrators/Leaders	2009
EFNEP/SNAP-Ed Coordinators	2009
American Psychological Association	2009
Health at Every Size	2009
Association for Size Diversity and Health	2009
National Association for the Advancement of Fat Acceptance.	2009
National Nutrient Databank Conference Advisory Committee	2009
Southern Region, Family and Consumer Sciences Program Leaders	2009

Appendix H - Documentation of Previous Score Changes:

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 scores 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 I - Nutrition and Healthier Food Choices Publications Reported in 2009

Peer-Reviewed Journal Publications

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Appendix J – 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. NIFA Contact- Shirley Gerrior. (202-720 4124;sgerrior@NIFA.usda.gov)

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

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

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

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

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

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

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

"Biomarkers for Optimal Choline and Calcium Requirements During Pregnancy" PI: Patrick Stover at Cornell. NIFA Contact- Etta Saltos. (202-401-5178; esaltos@NIFA.usda.gov)

Multistate Research Projects

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

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

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

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

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

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

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

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

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

W2002: Nutrient Bioavailability--Phytonutrients and Beyond. NIFA Contact- Etta Saltos (202-401-5178; esaltos@NIFA.usda.gov)

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

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

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

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

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

SERA 019: Rural Health is a multi-state information exchange group comprised of professionals that are concerned about the health and well-being of communities across the Southern region. NIFA Contact Shirley Gerrior (202-720-4124); sgerrior@NIFA.usda.gov