Annual Report
of
Accomplishments & Results
(2001)
for
Colorado ‘99-‘04
Plan of Work

State Programs

Introduction

Colorado State University Cooperative Extension has integrated its ongoing programs and its critical issue programs to present a group of ten program priorities for the state:

Addressing Growth Decisions
Community Commitment to Families and Youth
Engaging Communities in Transition
Enhancing Families and Community
Growing Horticulture in Colorado
Improving Nutrition, Food Safety, and Health
Strengthening Youth Development
Sustaining Agriculture and the Environment
Understanding Biotechnology
Expanding Opportunities for Colorado's Workforce

In general, Program Teams are comprised of state and county Extension faculty and University faculty without Extension appointments from a variety of disciplines. They are responding to current political, environmental, and economic concerns and bring creative interdisciplinary work to bear on these program areas. These ten program areas contribute to the five federal goals with the following linkages:

Goal I. An agricultural system that is highly competitive in the global economy.
Colorado Program Teams:
Expanding Opportunities for Colorado's Workforce
Growing Horticulture
Sustaining Agriculture and the Environment
Understanding Biotechnology

Goal II: A safe and secure food and fiber system.
Colorado Program Teams:
Improving Nutrition, Food Safety and Health
Strengthening Youth Development
Understanding Biotechnology

Goal III: A healthy well-nourished population.
Colorado Program Teams:
Empowering Family and Youth Voices
Engaging Communities in Transition
Improving Nutrition, Food Safety and Health
Strengthening Youth Development
Sustaining Agriculture and the Environment
Understanding Biotechnology

Goal IV: Greater harmony between agriculture and the environment

Colorado Program Teams:

- Addressing Growth and Decisions
- Growing Horticulture
- Improving Nutrition, Food Safety and Health
- Strengthening Youth Development
- Understanding Biotechnology

Goal V: Enhanced economic opportunity and quality of life for Americans

Colorado Program Teams:

- Addressing Growth Decisions
- Engaging Communities in Transition
- Enhancing Families and Communities
- Expanding Opportunities for Colorado's Workforce
- Understanding Biotechnology
- Voices for Families and Youth

Specific Action Committees have been identified to move some programs, immediately, to citizens (See next page).

Another accomplishment of Colorado State University Cooperative Extension in the year 2001, is the populating of our new electronic reporting system, e-POWER, with plans of work and outcome reports. While compliance is still not 100%, we have been able to generate reports and reinforce the impact of these data for our system. For this report, all impacts attributable to Cooperative Extension programming are results of a search on the e-Power database.

Colorado State University Cooperative Extension
Program and Action Teams

Fall 2001

Addressing Growth Decisions ..... Andy Seidl & Lloyd Walker
- Natural Resources ..... Del Benson
- Policy ..... Andy Seidl
- Small Acreages ..... Bob Hamblen & John Ortmann
- Water ..... Reagan Waskom

Empowering Family and Youth Voices ..... Dale Leidheiser & Jacque Miller

Engaging Communities in Transition ..... Diana Laughlin & Sheila Knop
- Colorado Internet Masters ..... Sheila Knop
- Entrepreneurial Agriculture and Forestry ..... Rod Sharp & Dennis Kaan
- WestLand: the Workshop ..... Sheila Knop & Diana Laughlin

Enhancing Families and Community ..... Jan Carroll and Laurel Kubin
- Expanding Capacity for Effective Action ..... Jan Carroll
- Gerontology ..... Luann Boyer
- Increasing Family Economic Stability ..... Jacque Miller & Judy McKenna
- Nurturing Families ..... Robert Fetsch & Rick Peterson

Expanding Opportunities for Colorado's Workforce ..... Judy McKenna & Dawn Thilmany
- Informing Colorado Employers ..... Dawn Thilmany
- Preparing Colorado's Workforce ..... Jacque Miller & Judy McKenna

Growing Horticulture in Colorado ..... Steve Newman
- Master Gardeners ..... David Whiting
- Partnering for Green Colorado ..... Jim Klett and Carl Wilson

Improving Nutrition, Food Safety and Health ..... Jennifer Anderson
- Food Safety and Quality ..... Pat Kendall

Food Security ..... Karen Wilken
Health Promotion /Disease Prevention ..... Jennifer Anderson

Strengthening Youth Development ..... Sue Cummings
- Curriculum Development ..... Sue Cummings

Leadership and Volunteerism in 4-H ..... Dale Leidheiser
Special Initiatives ..... Jan Carroll

Sustaining Agriculture and the Environment ..... Dennis Lamm & Tim Steffens
- Agricultural Profitability ..... Sue Hine & Dennis Kaan

Animal Emergency Preparedness ..... Tom McBride
Drought ..... Dennis Lamm & John Ortmann
Nutrient Management ..... Jessica Davis & Tim Stanton

Understanding Biotechnology ..... Pat Kendall and Pat Byrne

2001 System Priorities for Colorado

Reporting/Accountability/Marketing

During this year, an inordinate amount of system energy went into the creation of two new systems for accountability and reporting. The first is our e-Power electronic database, which incorporates plans of work and outcomes/impact indicator data. This database was designed in 1999-2000 and we required the system to use it for program information for the first time in 2001. It is unique in that we have the complete programs of work for all of our state program teams, all regional teams, and county teams, as well as individual specialists or agents who are working on plans by themselves. The logic model of program development and evaluation is the construction base for e-Power, and it has a rich database of help screens to assist people moving through this program. For the first time we are filing a report based on data pulled from this electronic system.

A second electronic commitment we have made is a new frequently asked questions web-based intelligence system utilizing the copyrighted RightNow software program. We have asked county and state faculty to identify major program areas appropriate for our mission and to populate this database with the most frequently asked questions. An advisory committee of state and county faculty has identified major topics and guidance for persons asking questions of the system. As of December 31, 2001, we had approximately 1000 questions and we were continuing to answer them with research approved information from county and state faculty. All questions and answers will be reviewed before the system will be made public. We anticipate that mid-way through 2002 we will begin marketing this system to the public with a variety of methods. The system will allow persons to enter and ask a question by matching their interests with a number of key words already in the system. They can also search a brief list of the most frequently asked questions in Colorado. Furthermore, they can enter a unique, new question that will be routed to a state specialist for answer. Once an answer is constructed and approved, this will be made available in the public side of the database. While we are still involved in the construction of this system, we believe that it will reduce the number of "nuisance" repetitive calls and help the public engage county and state faculty in more meaningful dialogues which require professional judgement for appropriate response.

Emerging Programs

Two major program themes absorbed a great deal of Colorado State University Cooperative Extension programming resources. The first was the worldwide concern around foot and mouth disease. We have a well-developed relationship of close collaboration between Cooperative Extension, the Veterinary Teaching Hospital Diagnostic Laboratory, and the Colorado Department of Agriculture State Veterinarian's office. As noted under Goal III, we engaged in a concerted statewide delivery of regional trainings on foot and mouth disease with our partners in the emergency planning offices and other local officials. While the prevention of a negative outcome is difficult to calculate, the impact of this collaborative work created great visibility for Cooperative Extension and reinforced critical partnerships that are now available for us to utilize on the topics of homeland security and biosecurity.

A second commitment in new programming emerged after 9/11 in the form of support for Colorado workers in employment transition. The program team worked hard to catalogue Colorado and nation-wide resources for a new web site and developed new relationships with a

variety of employment education and service agencies.

Diversity

In addition to the work on new resources and program, Colorado State University Cooperative Extension made a concerted commitment to diversity by organizing its entire Fall Forum Conference on the diversity theme. Colorado is one of the Change Agent States for Diversity, and has a strong state diversity committee led by a Colorado State University Cooperative Extension diversity coordinator. During this fall forum, diversity was defined in a broad sense from underserved audiences to cultural and racial diversity and to audiences with different learning styles. The evaluation of the conference was that it was the most impactful and helpful conference that CSU Cooperative Extension has held in many years. (See Appendix A for a copy of the program.)

Stakeholder Survey

As part of our continuing commitment to outreach and hearing from stakeholders, Cooperative Extension co-funded a replication of a research study of Coloradans' attitudes toward Agriculture. First completed in 1996, a faculty member in the College of Natural Resources and a representative of the Department of Agriculture surveyed a random sample of 450 individuals by telephone. Key findings were that Coloradans generally feel that agriculture protects a positive quality of life and provides food at reasonable prices. One difference from 1996 was that a new question regarding how safe genetically engineered food is to eat revealed that only 36% believe that it is usually or almost always safe. Another new finding was that 64% of the respondents indicated that they would buy more Colorado identified products if they were available. A number of the data summary points illustrate an increasing diversity of opinions about current practices and understanding of agricultural production. However, there is still overall a very positive view of agriculture and interest in protecting open lands for agriculture and natural resource use. (See Appendix B.)

Biosecurity and Public Safety

Following the events of September 11, the entire Extension system absorbed tremendous grief and shock and reprioritized the importance of public safety and community building. We created an interdisciplinary group of campus scholars with expertise and interest in biosecurity and began the process of dialogue about how our lives had changed and what information we should provide to the public. We planned a series of public forums and training for extension personnel to be presented in 2002.

In collaboration with these efforts, we supported the efforts of two faculty members, one in Bioagricultural Sciences and Pest Management and one in Soil and Crop Sciences to initiate training and grant writing in the area of ethical issues in agriculture. Since increasing numbers of our most critical programming challenges are issues related to public controversy and the clash of public/private values we believe it is important to enhance the internal dialogue concerning these challenges. In addition we have appointed a professional development committee to create a two-day base training on handling controversial issues at the community level. This interdisciplinary committee is charged with enhancing the capacity of the Colorado State University Cooperative Extension system to facilitate civic dialogues around critical issues for which the land grant university has expertise and responsibility. A number of these issues are reflected in the creation of our four new programming areas: Understanding Biotechnology, Expanding Opportunities for Colorado's Workforce, Addressing Growth Issues, Empowering Family and Youth Voices. During our annual subject matter professional in-service for the system, we highlighted the importance of these four new program areas. Educational sessions were enriched by a great variety of faculty members, many of whom were from other campuses and/or do not have Cooperative Extension appointments.

Plan for Agriculture

Another major commitment of our system was to work as an important partner in the development of a Colorado Plan for Agriculture. Colorado State University President Albert Yates initiated this intensive process which involved faculty discussions, production of initial draft papers, meetings throughout the state of Colorado with stakeholders, and the development of a strategic plan (see Appendix C.) Now, the plan is being presented to stakeholders, our own staff and other appropriate audiences. As part of this process of reflecting on our priorities for the university, intensive discussions were held between the Colleges of Agricultural Science and Natural Resources to consider integration or some new structure of collaboration. Ultimately the decision reflected that the two colleges represent quite contrasting cultures with different stakeholder groups. A deliberate process of initiating greater visibility for collaborative projects and virtual institutes will be initiated as an interim step toward fuller cooperation at some future date.

Legislative Initiative and New County Agreements

The three agencies (Cooperative Extension, Agricultural Experiment Station, and Forest Service) were successful with the support of the university, the Board of Agriculture and the Higher Education Coordinating Board in obtaining funding for three new initiatives during the legislative session of Spring 2001. For Cooperative Extension this meant the funding of seven (7) new county faculty positions, and access to new funding in collaboration with AES around noxious weed management and education (See Appendix D). While the state has begun conservative spending patterns post-9-11, we have still been challenged to fill a number of new positions at the county level. In addition, one new Colorado county was formed during the 2000 general election and one of the six counties in Colorado where we do not presently have a county extension office has initiated plans for a joint MOU with Colorado State University Cooperative Extension.

Thus we end the year having made drastic changes in our electronic reporting and accountability system, our tools available for public information, a responsive and focused program and professional development process on key critical programming issues, and new resources and partners for immediate and long-term program development. We are weary, exhilarated, and challenged.

GOAL I: An agricultural system that is highly competitive in a global economy.

Issue: *Despite its urban and suburban growth, Colorado still has a strong agriculture base but has an increasingly differentiated economy with strength in the tourism and technology-related industries. The depressed commodity prices and the international markets create new challenges for traditional producers. Current research shows only 10% of livestock producers and 40% of grain producers implement some risk management tools. These factors contribute to an increased need to emphasize management skills, in addition to production expertise in all Extension agricultural programs.*

Colorado Situation Influencing Goal I

Livestock Production

Production of meat-producing livestock is a significant portion (56.7 %) of Colorado's total cash agricultural receipts. Of these receipts, 87.9 % ($2,149,157,000) were from the sale of cattle and calves (USDA, 2000). Colorado ranks 4th in cattle on feed and commercial cattle slaughter representing 7.3 % of all cattle slaughtered under federal inspection and easily ranks 1st in lambs on-feed and lamb slaughter with 34.6 % of federally inspected lamb slaughter occurring in Colorado. Although commercial hog slaughter in Colorado is relatively small (228,000 head during calendar year 1999), total hog numbers have steadily increased since 1988 (220,000) to a current inventory of just fewer than 1 million total hogs (USDA, 2000). With the large numbers of market livestock, in addition to two of the largest beef and lamb slaughter facilities in the U.S., the quality, safety and demand for red meat is essential for the economic sustainability and profitability of the Colorado livestock industry. Strong cattle prices and a third, consecutive year of improved beef demand were prominent features of the 2001 cattle market. However, 2001 will also be remembered for continued dry weather, uncertain future demand and concerns over the future health of the economy. Many cattle producers faced poor pasture conditions in 2001 while cattle feeders also faced much red ink. Hog producers had a good year for much of 2001, particularly in the spring and summer. Strong demand and smaller supplies resulted in higher prices. However, there was a surprise expansion in hog numbers during the fall and the handwriting continues to be 'on the wall' for a hog industry expansion in 2002.

Grains

Colorado corn and other feed grain prices tend to be dominated by developments in other states, especially the Midwest and by international conditions. The national cash corn price received by farmers for the 2001 crop marketing (ending September 1, 2002) year is estimated at $1.95 per bushel. This is slightly higher than a year ago, but remains $.50 to $1.00 lower than the 1995-1999 five-year average. Looking ahead to the 2002 marketing year, the dominant factors in the feed grain markets will be U.S. corn supplies, usage, and the new farm bill.

Colorado feed grain producers and livestock operations need to keep an eye on government policy. Changes in government policy can impact corn prices and hence farmer income and costs of raising livestock. As of late 2001, conflicting proposals and policy perspectives emerged on the new Farm Bill. Even if a new long-term Farm Bill emerges, will it need to be periodically adjusted to reflect budget limitations? Another longer-term policy dimension that may impact

feed grains is the international trade environment. Now that China is part of the World Trade Organization, will Russia and other countries follow? Will new trade agreements be successful in reducing barriers to U.S. agricultural exports? And will U.S. farm programs require adjustments to comply with those international agreements?

Oilseeds/Sunflowers

Colorado farmers planted 22 percent more acres of oilseeds/sunflowers (225,000 acres) in 2001 as compared to 2000. Overall in 2001, plantings in the U.S. totaled 2,750,000 acres, a decline of just 2 percent compared to 2000. On the other hand, Colorado producers harvested 226.8 million pounds of sunflowers, 131 percent of the 2000 crop.

Dry Beans

As with total U.S. production, Colorado has seen a reduction in acreage and output for dry beans in 2001. Acres harvested for all classes totaled 105,000 acres, a 5 percent decline from 2000. Total production for all classes of dry beans equaled 1,785,000 cwt in 2001. This is a 10 percent reduction compared to 2000.

Wheat

Colorado's winter wheat production was down significantly in 2000 due primarily to drought, above average temperatures, and freeze. Yields averaged 29.0 on 2.35 million harvested acres – the lowest since 1989. By 2001, winter wheat production in Colorado was 2.00 million acres harvested, with an average yield per acre of 33 bushels.

Vegetables

The Colorado vegetable industry continues to evolve as it faces changes in traditional markets and competition for land and water resources from a growing urban population. One of the most notable changes in the industry concerns the marketing of vegetables. Because these fundamental changes require capital, it has been difficult for some producers to make the necessary transitions. This is especially true for smaller growers. Fortunately, for the smaller-sized vegetable grower, direct marketing continues to be a bright spot in the state's overall vegetable picture. Farmers' Markets, roadside stands, and Consumer Supported Agriculture enterprises (CSAs) around the state continue to attract new customers. In addition, a number of restaurants in the Denver metro areas have made a concerted effort to buy Colorado produce and form direct connections to Colorado growers. In general, the demand for fresh Colorado-grown produce is strong and the increased awareness of Colorado produce has certainly been aided by the "Colorado Proud" program developed by the Colorado Department of Agriculture.

Overall, Colorado vegetable acreage is estimated to be approximately 45,000 acres, not including potatoes. Onions are still the most widely grown vegetable crop, at over 12,000 acres. Aside from the typical scattered hailstorms, the past year was a good one for onion growers. The dry weather helped to keep onion quality high and market prices were generally fair. Second to onions in terms of acreage was sweet corn. Sweet corn was grown on roughly 8,000 acres and its worth

represented about 11 percent of the total vegetable value for the state. Although beneficial to most vegetable crops, the warm and dry weather in 2001 had some negative effect on sweet corn. Early in the harvest season, there were problems with poor pollination and ear development on the Western Slope. Eventually, things got better and later crops had excellent quality. Carrots, grown on about 4,000 acres, represented over 18 percent of the total vegetable value. Carrots were primarily grown in the San Luis Valley and the northern part of the state. Other crops like cantaloupe, spinach, lettuce, and cabbage continue to be widely grown. Each of the aforementioned crops is grown on over 2,000 acres.

Aside from these traditionally produced vegetables, organic production and specialty crops are becoming increasingly important to the states' vegetable growers. As Colorado's population becomes larger and more diverse, the demand for new crops and crops grown with alternative production practices rises. A wide variety of vegetables like peppers, kabocha squash, Asian greens, and various kinds of organic produce have exhibited great potential for Colorado's growers. Aside from the yearly concerns about weather conditions and the cost and availability of labor, the vegetable industry should continue to adapt and flourish in the state. We are likely to witness additional changes in the industry as growers learn to work cooperatively for the purpose of marketing and small-scale processing.

Potatoes

Fall potato production for Colorado fell 24 percent from last year's near record crop. This substantial drop in production translated directly into a better financial situation for the potato farmer. The typical Colorado potato grower is experiencing a return on crop that is up to 300 percent higher than in 2000. For Colorado and the United States, Mexico has become a complicated potato market. Implementation of NAFTA created an ideal opportunity for Mexico to rethink its relationship with the U.S. on many trade issues and in particular potatoes.

By July of 2001, Mexico had barred entry of table stock potatoes from seven states, Arizona, Colorado, Nebraska, New Mexico, North Dakota, Texas and Wisconsin, based on alleged interceptions of nematodes of quarantine concern. These allegations are under investigation by APHIS. At the same time, APHIS is working diligently to address Mexico's concerns by developing a comprehensive export protocol for U.S. table-stock potatoes. The protocol follows a multi-component systems approach for mitigating the risk of nematodes of quarantine concern to Mexico. It was submitted to the Director General de Sanidad Vegetal in Mexico City in August. A response to our protocol was issued by Mexico in Mid-November.

Unfortunately, the response, which came in the form of specific import requirements for U.S. potatoes, was not conducive to trade. Mexico ignored our systems approach and instead elected to apply a "most restrictive measures" approach to risk mitigation, a standard that cannot be met in the commercial environment. Legitimate or not, these actions by Mexico demonstrate the effectiveness of phytosanitary issues to curtail market access.

Mexico could be a multi-million- dollar potato market for the U.S., but first they must want trade in U.S. potatoes. We cannot force it on them. And while government negotiations may prove fruitful, relationships between U.S. and Mexican potato growers could be more valuable. U.S. potatoes will move into Mexico when marketers in Mexico find situations where profits can be

made. Surely there are specific markets in Mexico at particular times of the year where properly priced U.S. potatoes could turn a handsome profit. If this market is to be sustainable and equitable such opportunities must be sought out by the respective industries.

Hay

Hay continues to rank as one of Colorado's top three agricultural crops in terms of value. Although 11 percent more acres were harvested for hay in Colorado during 2001 compared to the previous year, the total supply is essentially the same as in 2000 because of the low beginning stocks. Basically, producers planted and harvested more acres in an effort to replenish supplies and capitalize on the strong hay market. Nationally, hay prices are running well above ($15 to $20 per ton) the 10-year seasonal average. Prices in Colorado are following that same trend. Depending on the particular area of the state, the current price for quality alfalfa hay ranges from $80 to $105 per ton. Premium and supreme quality alfalfa hay generally demands from $10 to $40 more per ton. Premium quality grass hay from the mountain areas and the western slope currently sells for as much as $140 per ton, particularly when it is sold in the strong Front Range horse markets. Hay sales to small acreage horse owners are expected to continue to increase over time. Overall demand and prices for hay in Colorado are expected to remain steady to strong into the first part of 2002 as supplies diminish during the winter-feeding period.

According to the range and pasture conditions reports, as much as 50 percent of the grazing land in the western region is rated as being in poor to very poor condition. This is well above the five-year average of 20 percent. This fact will continue to contribute to the strong demand for hay in Colorado and surrounding western states. The outlook for the 2002 hay crop appears to be good in Colorado. Following a dry and unseasonably warm fall, much of the high country received significant snowfall in late November and early December. If this trend continues, there should be adequate water for irrigation during the upcoming cropping season. Approximately 90 percent of the alfalfa and 72 percent of the other hay grown in Colorado is irrigated. The long-range climatic models do not indicate significant chances for either above or below normal precipitation during the upcoming growing season in Colorado. It should be close to a normal production year. Because supplies currently are tight, it will probably take an above-normal precipitation year before there are surplus hay supplies and prices soften.

Green Industry

The green industry is the fastest-growing segment of agriculture in Colorado. In 1993, Colorado green industries total sales were estimated to be $1.37 billion. It is estimated in the year 2001 that the overall value of the industry was about 2.0 billion. A new survey will be conducted in 2003 to get a more accurate accounting. In 1993, the green industries employed 25,552 part and full-time employees. In 2001, it was estimated to be about 36,000. There are about 1,400 member companies within the green industry. If these figures were included in total agriculture figures for Colorado, it would be over 25 percent of the value of all of agriculture. The green industry companies include: 1) retail florist and nurseries and lawn and garden supplies; 2) wholesale florist and nursery stock companies and suppliers; 3) landscape architects and landscape and horticultural service suppliers; 4) greenhouse, nursery and turf production and distribution; and 5) membership and public golf courses and horticultural maintenance of them.

In January of each year, the green industry in Colorado sponsors a weeklong expo held at the Colorado Convention Center in Denver, which attracts over 7,000 professionals with over 700 booths at a trade show. This event is viewed as the premier green industry event for the entire Rocky Mountain region. The green industries of Colorado are a co-sponsor of Planttalk

Colorado™, which is a phone and web-based gardening information system for the gardening public. They also co-sponsor Plant Select®, a plant introduction program for the Rocky Mountain Region and beyond. In 2001, the green industries of Colorado developed and adapted a water task force called Water Efficient Leaders in Landscape (WELL). The mission of WELL is to inform, encourage and instill the practice of sound water use across Colorado and ensure landscapes remain an essential foundation of Colorado's quality of life, economic health and public image. Landscape plants clean the air and add beauty to the environment.

Fruits

Fruit crops in Colorado were reduced in 2001 by a number of factors, including poor return bloom, spring frost, and increased pest pressure due to the preceding mild winter of 2000/2001. Apple production was around 30 percent of normal, due to a combination of poor return bloom, spring frost and codling moth injury to fruit.

The 2000 apple set was heavy and thinning was not completed in a number of orchards in time to allow flower buds to form for the 2001 crop. National and global marketplace competition for apple sales continues to be great, but Colorado apples continue to enjoy a small, but consistent demand.

Apples continue to be Colorado's number one fruit crop on an acreage basis, but peaches are not far behind. The 2001 peach crop was only about 67 percent of normal; bloom appeared to be lower for some unknown reason (possibly fall freezes before the trees had finished hardening off for winter) and spring frosts further eroded production in different orchards.

Tart cherry production was down and pear production was about average. For the second year in a row, apricot growers had fruit to sell. Wine grape acreage and the number of wineries in Colorado continues to grow. Chardonnay, Merlot, Riesling, and Cabernet Sauvignon remain the major varieties.

Goal I Overview and Outcomes

Objective I.A: Enhance the profitability of Colorado agriculture producers with an emphasis on increased business management skills through the development and adoption of: 1) risk management tools; and, 2) comprehensive business plans including integrated resource management.

Rural and agricultural Colorado residents face economic, social and environmental challenges that will affect the long-term sustainability and profitability of natural-resource-based economic development. Technological advances, dynamic rural-urban interfaces, water availability and quality, changing government policies, increasing regulations, influxes of large-scale commercial agricultural businesses, and an increasingly older population involved in production agriculture continue to force Coloradans to make "hard" decisions about their personal futures and the futures of their communities.

Agricultural producers now operate in a market-oriented, individual responsibility environment.

Producers' management of these risks and occurrences of risk events impact families, the agricultural economy and the entire community. Successful agricultural producers understand their risks of doing business, and implement various strategies to manage those risks.

Many Colorado agricultural producers have faced substantial financial losses and erosion of equity in recent years. The markets continue to have downward pressures for many of the commodities produced in Colorado, while production expenses continue to rise at a two to four percent per year rate.

Rural Colorado communities face an environment of decreasing benefits from traditional agriculture and extractive natural-resource industries and increasing dependence on other economic development opportunities. The portfolio of economic opportunities for rural Colorado communities include industrial agriculture, smaller-scale niche agriculture, gaming, prisons and other governmental services, suburban growth, tourism, retiree, second home, lone-eagle and tele-commuter driven development. No economic development alternative is a panacea. Individuals and communities require timely and quality information to facilitate public and private planning and decision-making in the development of appropriate economic portfolios to meet individual and community objectives over the long term.

The issue is not so much how rural agricultural Colorado will change, but how producers and communities can adapt to an environment in which change is increasingly more commonplace. They must be flexible enough to change their business strategies as their risks change, and continually educate themselves about the impacts of a risk event and the strategies available to best manage for the event.

The number of small-and mid-sized farms and ranches is declining in Colorado (as in the U.S.) The Agriculture and Business Management (ABM) Economists as part of Cooperative Extension is working to stem the decline of small and medium-sized farms, to teach producers how to increase their farm efficiency and profitability, how to reduce their risk levels, and how to increase their resilience and quality of life levels. If current trends continue in Colorado, in 35 years the average age of farm/ranch producers will rise from 53 to 58. One of every three Colorado farmers and ranchers will leave production agriculture. One of every 10 acres in Colorado ranches and farms will be lost to agricultural production. With the phasing out of federal farm price support programs, many farm and ranch families feel the challenge of managing risks. ABM considers not only profit maximization but also consumer utility and satisfaction and the broader social objectives of rural communities.

Educational Strategies

Market outlook discussions are used to provide basic information to producers, to illustrate economic thinking, and facilitate integration of market information and business decision making.

Price-risk management tools through the use of futures and options are a primary method for acting on market information. Most producers do not use these tools--previous farm programs were direct substitutes for these tools. Education programs will present these tools and examples of their use. Further, the skills needed for use of futures and options are the same as those needed for the use of more common tools--cash-forward contracts and other forward-contracting arrangements. Thus, this program develops general market-risk management skills.

General information on economics and marketing is useful for a number of issues. Many

contemporary topics have marketing elements. The remainder of this program will address contemporary topics and incorporate experiential learning.

Risk Management Education Strategies:

1. Enroll 100 farm operators or operational teams to participate in the Risk and Resilience in Agriculture program.
2. Recruit 30 additional operators each year through referrals from current and previous program participants after the first year of this program.
3. Provide training to crop insurance agents and related users on the use of crop insurance as a risk management tool. Continue to partner and cooperate with Kansas State University and the University of Nebraska by providing one annual workshop in each of the three states.
4. Provide training workshops to 50 farmers, ranchers and rural residents to underscore the elements of a properly designed estate plan.
5. Provide 50 farm and ranch management association members an in-depth computerized analysis of their farm or ranch business annually and comparisons with other similar operations.
6. Provide 50 farm and ranch management association members educational opportunities in production, financial, marketing, risk management, estate planning and business organization.

Projected Outputs: *1) A series of fact sheets outlining risk management tools available to producers; 2) Workshops conducted with Cooperative Extension in Wyoming, Montana, and Colorado based on a research study of producer risk management practices in those three states; 3) Database of enterprise budgets for a representative sample of Colorado producers developed over the five-year period, initially utilizing records integrated from the two existing farm and ranch management associations. Appropriate additional producers will be acquired from individual subscriptions or collaborations with other organizations to complete a representative sample for Colorado.*

Projected Outcomes: *1) Increased adoption of risk management strategies by producers; 2) An increase in agriculture producers who implement an integrated resource management business plan for their entire business; 3) Integrated summaries of costs of production and analyses of Colorado agri-businesses to assist with education on management for producers, lenders, and policy makers.*

Expected Program Impacts:

1. Agricultural and natural resource economic programs will become well known and sought after among client groups.
2. Applied economic research will become common fundable projects for DARE and Economics Department graduate and advanced undergraduate students.
3. Value of economic analysis in facilitating decision-making will become better appreciated among client groups.
4. Extension personnel will be better trained in agriculture and natural resource economics methodology and embrace a broader and more objective role for Cooperative Extension in issue agriculture and natural-resource economics.

Outcome: Agricultural or livestock producers/land managers will report enhanced profitability through development of risk management tools or use of business plans that consider integrated resource management techniques.

Year Two Results

Key Themes - Agricultural Profitability, Risk Management

Outcomes: Of 3606 agricultural producer/land managers who participated, 3144 reported enhanced profitability through development of risk management tools or use of business plans that considered integrated resource management techniques.

Linkages: CSU departments of Agricultural and Resource Economics and Human Development & Family Studies, and Extension agents especially in the northeast and southeast regions of Colorado; Montana State University, Kansas State University and University of Wyoming Extension faculty.

Source of Federal Funds: Smith-Lever

Scope of Impact: Multi-State with Montana, Kansas and Wyoming.

Integrated CE/AES Work: In support of this goal the Integrated Resource Management (IRM) Project (#614) team is engaged in research to evaluate the most profitable, ecologically sound and socially accepted animal production systems. The results of this research are translated directly into the risk management and production consultation output through Extension state and county faculty. Resource from CE: .3 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	2	2.5	2.5	3	3.5	1,303,439
County FTE	2	2	3	4	5	1,224,816
Total FTE	4	4.5	5.5	7	8.5	2,528,255
Budget	346,204	394,480	471,031	595,857	720,684	

Objective I.B: Enhance the diversification of income for Colorado agriculture producers by increasing the production of alternative and niche market crops: 1) crops not currently grown or in low production in Colorado; 2) increase production and value-added facilities in Colorado.

A significant faculty member who led much of the value-added alternative crops research resigned to take a research/administrative position in Montana this year. This has changed the alternative agriculture products program to a greater emphasis on fruit, organic production methods, and encouragement of dry beans and sunflowers.

Colorado's fruit producers have an annual production valuation of $4 to $18 million and increasingly include growers with less than 10 acres who have limited agricultural experience, an

interest in organic and/or reduced toxicity risk production methods, and need training and resources in sustainable/organic fruit production.

Most of the fruit acreage is held by growers with less than 50 acres; approximately 85-87 % of the acreage consisted of units less than 10 acres in size in 1994 (1994 Fruit Tree Survey, Colorado Agricultural Statistics Service). Many of these are relatively new growers due to steady grower turnover. These inexperienced growers need training and resources in basic fruit production. Those within the primary fruit production area contact Colorado State University fruit research sites for help; those outside this are contacting County Extension agents for help.

Projected Outputs: *Development and introduction of successful new crops to Colorado.*

Projected Outcomes: *1) Fruit growers using an integrated approach to sustainable and/or organic fruit production in Colorado will increase by 20% over the 4-year period ending 9/30/2004; 2) Agricultural producers/land managers will enhance income diversification through production of alternative or niche-market crops and/or creation of value-added facilities for production of agricultural products; 3) Fields will show an increased production of alternative crops.*

Year Two Results

Agricultural producers/land managers reported enhanced income diversification through production of alternative or niche-market crops and/or creation of value-added facilities for production of agricultural products in 227 of 2,032 participants. Producers reported 32,812 acres planted in alternative crops overall, and 480 acres planted in canola.

Linkages: CSU departments of Soil and Crop Sciences, Agriculture and Resource Economics and the Agricultural Experiment Station; Colorado Department of Agriculture Marketing Division, Colorado Department of Local Affairs, Mesa County Commissioners, Fruita Consumers Coop Board of Directors, Mesa County Economic Development, and Fruita City Council.

Source of Federal Funds: Smith-Lever, Hatch

Scope of Impact: State Specific

Integrated CE/AES Work: An ongoing AES research project in support of new crop development (#729) provides information directly supportive of this Extension outreach effort. Resources from CE: .3 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	2	1	2	4	5	1,737,918
County FTE	2	1.5	3	3.5	4	1,148,265
Total FTE	4	2.5	5	7.5	9	2,886,183
Budget	346,206	118,491		654,133	788,959	

Objective I.C: Enhance Colorado producers' competitiveness through the use of appropriate new GPS/GIS and precision agriculture technologies.

Training of competent professionals to transfer precision technology to the user and farming community will be accomplished. The use of management zone systems to better manage the inherent variability of farm fields should reduce environmentally sensitive agricultural inputs, maintain or increase grain production, increase net profit, and enhance efficiency of agricultural inputs.

Irrigation methods and practices used in Colorado vary from wild flooding to sophisticated computer controlled systems. Although Colorado's climate is semi-arid (average annual precipitation ranges between 7 and 18 inches), water supplies are abundant in many places. Water supplies are abundant along the Front Range and on most of the Western Slope, including the San Luis Valley. The Eastern Slope can be divided into three major areas as far as water supplies are concerned. The valley of the South Platte River on the northeastern plains, the valley of the Arkansas River on the southeastern plains, and the third area is along the Nebraska and Kansas borders overlaying the Ogallala Aquifer. The first two have adequate water supplies during the early part of the season. The Water supplies later in the irrigation season depend on the river flows. The areas that pump water from the Ogallala Aquifer have consistent water supplies, but they are expensive due to high-energy costs. Irrigation is a must in several areas of Colorado, and in other areas it can increase yields significantly.

This situation of semi-arid climate, abundant water supplies and different climatic conditions creates a wide spectrum of irrigation practices in Colorado. The irrigation methods and practices used in different areas are a direct result of this situation. Water use efficiencies have a strong correlation with the cost and scarcity of water. The acceptance of new irrigation technology that can increase water use efficiencies is strongly correlated to the scarcity and cost of water.

The Western Great Plains region is among the leaders in the nation's crop production. The average corn grain yield of this region usually exceeds the national average. However, such high grain yield production comes at a cost of applying significant quantities of various agricultural inputs, i.e. irrigation, nutrients, and pesticides. Corn, a major crop in this region, is grown in rotation with high value crops such as onions and sugarbeets. These crops require high levels of inputs. In traditional farming systems, producers attempt to apply these inputs at a uniform rate across a given field. However, due to inherent spatial variability in the field, not all areas require the same levels of input. Because inputs are inexpensive relative to the value of the crop produced, farmers will logically apply inputs such that a fairly high proportion of the field receives an adequate level of the input. This results in various areas of the field receiving greater input than necessary. The significance is two-fold: additional inputs are purchased at a cost that may be unnecessary and excess input is especially prone to offsite degradation of the environment through runoff or leaching—a serious groundwater issue in this region. Intuition and on-going research data suggests that use precision agricultural practices and site-specific management of crop production inputs to match the variability that occurs in the field will solve many of the problems cited above.

The goal of this program is to enhance the farming communities' capacity to integrate site specific technologies into their farming systems. Preliminary data collection, analysis, and technology transfer initiatives allow site specific yield predictions based on the interaction of natural resources on different farmers' fields. Remote sensing technology for in-season variable rate N management is being developed. Continuation of this initiative with additional crops, additional sites and farmers, under additional irrigated systems, will greatly enhance the value of the work and facilitate adoption of precision technologies in agriculture that are economic, beneficial, and environmentally responsible.

Development and demonstration of management zones for variable rate nutrient, insecticide, miticide, herbicide, fungicide, and irrigation water management will be a valuable tool for decision support systems. Economic and environmental cost benefit analysis of precision farming will provide greater incentive to farmers for adoption of precision technologies into their operation. Assessment of user needs and adoption of precision farming technology will be measured through surveys and documented with on-site data. Training of competent professionals to transfer

precision technology to the user and farming community will be accomplished. The use of management zone systems to better manage the inherent variability of farm fields should reduce environmentally sensitive agricultural inputs, maintain or increase grain production, increase net profit, and enhance efficiency of agricultural inputs.

Projected Outcomes: *Increased profit through the adoption of appropriate GIS and GPS technologies in production areas of the state where economies of scale make this technology feasible.*

Year Two Results

Key Themes - GIS/GPS, Agricultural Competitiveness

Linkages: CSU departments of Chemical and Bioresource Engineering, Agriculture and Resource Economics, Soil and Crop Sciences, Bioagricultural Sciences and Pest Management; state, regional, and county faculty; Agricultural Experiment Station, Natural Resources Conservation Service, private seed companies, equipment companies and other agribusiness interests; Agricultural Research Service.

Source of Federal Funds: Smith-Lever, Hatch

Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	3	1.5	4	4.5	5	1,931,020
County FTE	2	3	3	3.5	4	1,148,265
Total FTE	5	4.5	7	8	9	3,079,285
Budget	442,755	208,968	615,858	702,409	788,959	

GOAL II: A safe and secure food and fiber system.

Issue: *Coloradans are particularly concerned about the safety and purity of their food supply. This is especially true of those persons who have immigrated to Colorado for the healthy natural environment and active lifestyle.*

An increasing number of Coloradans live in an urban environment and their views dominate the state legislature and many state policies. Coloradans are critical of the agriculture community whenever food safety alarms or food-borne illnesses become a matter of public attention. Specific concerns surround pesticide residues, microbial safety, and natural toxins. A strong environmental group in Colorado is critical of new biotechnology methods and preservation/packaging methods.

While 3(d) funding funds a number of specific food safety initiatives, food safety is an important component of our ongoing base programs. In 1996, 608 cases of food-borne illnesses were reported to the Colorado Department of Public Health and Environment (approximately 20 cases per 100,000 people). It is estimated that the cost in health care and loss of work productivity represents 75-330 million dollars annually in Colorado.

Colorado participated in the 1995 and 1996 regional Behavioral Risk Factor Surveillance System on food handling behaviors and consumption of foods. Half of the survey respondents (50.2%) reported eating undercooked eggs; by comparison 62% of Coloradans reported eating undercooked eggs. Coloradans also report consuming more pink hamburger meat (28.8%) than the other states surveyed (19.7%). Approximately, 23% of the Colorado respondents reported not washing their hands after handling raw meat or chicken, and 28% of Coloradans responded that they did not wash cutting surfaces with soap after using it with raw meat or chicken. Both of these percentages were higher than the averages in other states.

Colorado Situation Influencing Goal II

The population of Colorado in 1999 was 4,056,133 persons and has been estimated to be growing by between 2.2% and 2.5% yearly. The number of Coloradans living below the federally designated poverty line increased by almost a third from 1980 to a high of 392,938 in 1996. This was substantially above the 14.0% increase for the total population nationwide. The poverty rate for Colorado now stands at an estimated 11.7% compared with 10.1% in 1980.

Poverty Rates vary by age and living arrangements. Children continued to represent a large share of the poor population (39 percent) in the U.S. even though they were only about 26 percent of the total population.

Female single parent families have especially high poverty rates. According to the Bureau of Census' Consumer Expenditure Study, 81 percent of female single parent families receive public assistance, mostly in the form of food stamps. In fact, children under age 6 living in families with a female householder, no husband present, had a poverty rate (54.8%) that was more than five times the rate for their counterparts in married-couple families (10.1%).

In Colorado, while the percent of children in poverty has improved slightly over the past ten years, the 1996 percentage was 14.2. The proportion of families below poverty also increased from 1980 to 1998 from 7.4% to 10.0%.

One of the many consequences of poverty is the lack of money for food. Food resource management is an important tool to learn in order to stretch food dollars, so that families not only have enough food to last until the next paycheck, but make healthful food choices too.

Colorado Adult EFNEP will improve the nutritional well being of low income Coloradans and increase their ability to manage food resources through informational and educational opportunities that will help them develop new skills and learn new behaviors toward attaining self-sufficiency

Food Safety and Quality

Safe Food-Handling Practices

Foodborne illness in the United States is a major economic burden and cause of human suffering and death. While foodborne illnesses are often temporary, they can result in more serious illnesses requiring hospitalization, long-term disability and death. The economic and social consequences of foodborne disease in relation to health care costs and loss of work productivity is quite large. Hospitalizations due to foodborne illnesses are estimated to cost over $3 billion each year in the United States and over $43 million in Colorado. The yearly cost of lost productivity is estimated at between $20 and $40 billion in the U.S. and $292 to $584 million in Colorado.

The actual number of foodborne illnesses occurring in the United States is unknown (28) The Centers for Disease Control and Prevention (CDC) estimated that in 1997, foodborne contaminants caused approximately 76 million illnesses, 325,000 hospitalizations, and 5,000 deaths in the United States. These estimates make the assumption that because most cases of foodborne illness are mild and/or short-lived and are difficult to trace back to a particular food, only one to five percent of actual cases are reported each year and even fewer are investigated.

In 1998, 38 outbreaks of foodborne illness potentially affecting 956 people were investigated in Colorado. This yielded an approximate foodborne illness rate of 23.6 cases / 100,000 people. For states involved in FoodNet (Foodborne Diseases Active Surveillance Network), a program which actively assesses reported cases of foodborne illness, the preliminary foodborne illness incidence rate for 1999 was 40.7 cases /100,000 people. Clearly, an active surveillance results in more cases being reported and investigated.

The 1999 FoodNet report summarizes data from 7 states (California, Connecticut, Georgia, Minnesota, Oregon, New York, and Maryland). Colorado joined the network in January 2000 and will begin contributing surveillance data in January 2001. The Colorado site will include selected counties in the Denver metropolitan area, representing 48% of the state's population.

FoodNet data suggest a 21% decline in the foodborne incidence rate between 1996 and 1999 in the five original sites, 51.2 cases/100,000 in 1996 vs. 40.7cases/100,000 in 1999. Although FoodNet is suggesting a trend of decreased incidence of foodborne illness cases, public health

officials continue to be concerned about foodborne illness. Many feel that certain issues and trends may make foodborne illness more of a problem in the years to come. According to the Healthy People 2010 Initiative, emerging pathogens, improper food preparation, storage, and distribution practices, insufficient training of retail employees, an increasingly global food supply and an increase in the number of people at risk because of aging and compromised capacity to

fight these diseases may all play an important role in the foodborne illness trends we will see in the future.

Results from the 1995 & 1996 Behavioral Risk Factor Surveillance Systems (BRFSS) suggest that Coloradans exhibit risky food handling behaviors as well as consumption of high-risk foods. Colorado was one of eight states, which participated in the 1995, & 1996 BRFSS. Consumers were asked a set of questions to identify food handling, preparation, and consumption behaviors that have been associated with foodborne diseases in adults. Half of survey respondents (50.2%) reported eating undercooked eggs; by comparison, 62% of Colorado respondents reported eating undercooked eggs. It also appears that more Coloradans reported consuming pink hamburgers (28.8%) than the other states surveyed (19.7%). Overall, the prevalence of reported consumption of pink hamburgers decreased with age, increased with education and increased with income.

Coloradans could also benefit from more education on safe food handling and preparation practices as shown by results in the 1995 & 1996 BRFSS. Approximately 23% of Coloradans reported not washing their hands with soap after handling raw meat or chicken, compared to 18.6% of the total participants from all states surveyed. The practice of not washing cutting surfaces with soap after using it for cutting raw meat or chicken was reported by 19.5% overall and by 28.2% of Coloradans in the survey. All high-risk food handling, preparation, and consumption behaviors were more prevalent in men than in women. This may help explain the recent FoodNet finding that "overall, males were more likely than females to be infected with every pathogen except Cyclospora and Yersinia". Interventions are needed to reduce the prevalence of these risky behaviors.

The hazard of foodborne illness originating from mishandled food is an issue in any location where food is available to consumers. This risk is especially important when hazardous food is served in group settings to older persons, young children, or individuals with compromised immune systems. Protecting high risk individuals from foodborne disease is expected to take on increased significance as more children are kept in child care homes and centers and a greater segment of the population becomes immunocompromised through aging, medical intervention, and illness.

Food poisoning is usually a preventable disease. In most instances it can be avoided simply by applying well established hygienic standards in the production, preparation, holding, and serving of food. If safer food is our goal, food service personnel need to be trained in proper food handling practices. According to Bryan, “a few operations are vital to food safety”. By using a Hazard Analysis/Critical Control Points system and ensuring that operations are carried out in a safe manner, many food safety hazards could be prevented, controlled, or alleviated with a high degree of assurance.

Seven food safety objectives are identified in the Healthy People 2010 Initiative with the goal to

reduce foodborne illnesses. Clearly two of the seven objectives could be impacted by food safety education provided by Extension Agents in Colorado.

Five food safety risk factors related to employee behaviors and preparation practices have been identified by CDC as contributing to foodborne illness. These include improper holding temperatures, inadequate cooking, contaminated equipment, food from an unsafe source, and poor personal hygiene. For each year from 1988 through 1992, the most commonly reported food preparation practice that contributed to foodborne disease concerned improper holding temperature; the second concerned poor personal hygiene of food handlers.

Extension Agents currently provide food safety education to the audiences listed in the Healthy People 2010 10-5 and 10-6 objectives. Extension Agents educate consumers and work collaboratively with environmental health agencies and retail establishments to educate the food handler in retail food establishments as well as food handlers in institutional establishments. Colorado, as well as the nation, is experiencing a trend of high rates of employee turnover in the retail food industry. The retail food industry has the additional challenges of language and literacy barriers and non-universal systems for training and certifying workers in the area of food safety. The task to provide food safety training to this dynamic audience is great and not easily handled by any one group. Hence the opportunity for collaboration in providing food safety training is not only possible but practical.

Innovative strategies designed to educate consumers and food handlers about food safety issues and about proper food handling techniques are needed. Incorporating the following six components into any food safety educational strategy will help to assure success:

1. Information Sharing: Work collaboratively with many agencies to encourage joint initiatives and information sharing.
2. Consistent Messages: Agencies need to coordinate message development and strive for consistency whenever possible.
3. Research-Based: Base the education efforts on scientific findings.
4. Target High-Risk Consumers: Focus education efforts on those consumers who are at the highest risk.
5. Work with the Media: Work with the media to ensure that the media has accurate information and encourage media representatives to help us convey our food safety education messages.
6. Educate all Audiences: Direct education efforts to all appropriate audiences, including food handlers, health professionals, state and local officials, consumers and childcare workers.

Goal II Overview and Outcomes for Program Year 2001

Objective II.A: Promote food safety across the food chain from production through consumption.

Projected Outputs: *1) A rapid response and information service including the safe food web site; 2) a food safety list serve; and 3) a quarterly food safety newsletter.*

Projected Outcomes: *80% of Extension program participants will show increased knowledge of recommended food handling practices through pre/post survey.*

Objective 1: Health promotion and disease prevention.
Participants will enhance adoption of dietary factors related to health promotion and disease prevention.

Individual Consultations change in program participants

- Total number of individual contacts: 32,070
- Number who increased knowledge as a result of the contact: 30,053
- Number who plan to adopt the recommendation as a result of the contact: 7,410
- Number who actually adopted the recommendation as a result of the contact: 1,800

Program Activity: Program participant type(s)

- Mixed Group: 15,000
- Consumers: 6,270
- Extension staff: 60
- FSNEP clientele: 6,000
- Professionals: 3,930
- Trainers: 60
- Volunteers: 300
- Youth: 21,090

Change in program participants

- Total number of program participants: 63,060
- Number who increased knowledge as a result of the program: 60,240
- Number who plan to adopt or strengthen at least one new behavior as a result of the program: 34,260

Program Indicators

- Total program hours -- preparation & delivery: 9,900
- Total hours contributed by volunteers: 4,170

Objective 2: Dietary Guidelines, general health, and wellness. Participants will enhance adoption of food consumption and lifestyle practices that promote good health.

Individual Consultations change in program participants

- Total number of individual contacts: 9,040
- Number who increased knowledge as a result of the contact: 9,040
- Number who plan to adopt the recommendation as a result of the contact: 1,680
- Number who actually adopted the recommendation as a result of the contact: 3,840

Program participant type(s)

- Mixed Group: 7,240
- Consumers: 4,760
- Extension staff: 1,280
- Food handlers: 240
- Food managers: 80
- Food producers: 3,040
- FSNEP clientele: 56,720
- Pregnant/lactating females: 40
- Producers: 280

- Professionals: 320
- Trainers: 40
- Volunteers: 2,440
- Youth: 2,840

Change in program participants

- Total number of program participants: 74,840
- Number who increased knowledge as a result of the program: 17,200
- Number who plan to adopt or strengthen at least one new behavior as a result of the program: 53,560
- Number who actually adopted or strengthened one new behavior as a result of the program: 50,720

Program Indicators

- Total program hours -- preparation & delivery: 19,080
- Total hours contributed by volunteers: 7,920

Objective 3: Safe Food-Handling Practices. Participants will reduce foodborne illness risks by adopting safe food production, handling, preparation and consumption practices.

Individual Consultations Change in program participants

- Total number of individual contacts: 12,408
- Number who increased knowledge as a result of the contact: 10,523
- Number who plan to adopt the recommendation as a result of the contact: 10,032
- Number who actually adopted the recommendation as a result of the contact: 4,180

Program Activity participant type(s)

- Mixed Group: 183,128
- Consumers: 99,308
- Extension staff: 1,936
- Food handlers: 6,776
- Food managers: 2,156
- Food producers: 5,500
- FSNEP clientele: 60,720
- Professionals: 1,452
- Volunteers: 7,436
- Youth: 116,292

Change in program participants

- Total number of program participants: 486,992
- Number who increased knowledge as a result of the program: 266,904
- Number who plan to adopt or strengthen at least one new behavior as a result of the program: 261,888
- Number who actually adopted or strengthened one new behavior as a result of the program: 90,024

Program Indicators

- Total program hours -- preparation & delivery: 52,888
- Total hours contributed by volunteers: 120,956

Objective 4: Risks and Responsible Practices. Participants will improve their understanding of food-related risks and the scientific bases for risk management decisions.

Individual Consultations change in program participants

- Total number of individual contacts: 23,016
- Number who increased knowledge as a result of the contact: 21,980
- Number who plan to adopt the recommendation as a result of the contact: 280
- Number who actually adopted the recommendation as a result of the contact: 224

Program Activity participant type(s)

- Mixed Group: 1,260
- Consumers: 28
- EFNEP clientele: 28
- Extension staff: 140
- Food handlers: 1,792
- Food managers: 308
- Food producers: 308
- FSNEP clientele: 28
- Producers: 224
- Professionals: 112
- Trainers: 168
- Volunteers: 112
- Youth: 28

Change in program participants

- Total number of program participants: 6,132
- Number who increased knowledge as a result of the program: 5,824
- Number who plan to adopt or strengthen at least one new behavior as a result of the program: 2,632
- Number who actually adopted or strengthened one new behavior as a result of the program: 1,260

Program Indicators

- Total program hours -- preparation & delivery: 2,492
- Total hours contributed by volunteers: 280

Objective 5: Food Resource Management. Participants will report saving money on their food bills.

Program participant type(s)

- FSNEP clientele: 1,943

Change in program participants

- Total number of program participants: 1,943
- Number who actually adopted or strengthened one new behavior as a result of the program: 290

Objective 6: Individual Food Security. Participants will report not running out of food by the end of the month.

Individual Consultation change in program participants

- Total number of individual contacts: 690
- Number who increased knowledge as a result of the contact: 690
- Number who plan to adopt the recommendation as a result of the contact: 360
- Number who actually adopted the recommendation as a result of the contact: 330

Program Activity participant type(s)

- Mixed Group: 2,520
- Consumers: 660
- EFNEP clientele: 30
- Extension staff: 990
- Food handlers: 630
- Food managers: 360
- Food producers: 1,620
- FSNEP clientele: 1,080
- Pregnant/lactating females: 240
- Producers: 450
- Professionals: 360
- Trainers: 750
- Volunteers: 1,350
- Youth: 750

Change in program participants

- Total number of program participants: 14,010
- Number who increased knowledge as a result of the program: 9,870
- Number who plan to adopt or strengthen at least one new behavior as a result of the program: 3,690
- Number who actually adopted or strengthened one new behavior as a result of the program: 7,350

Program Indicators

- Total program hours -- preparation & delivery: 20,970
- Total hours contributed by volunteers: 7,350

Objective 7: Community Food Security. Participants will enhance knowledge, awareness, and/or action towards building community food security.

Objective 8: Community Collaboration. Communities will improve their capacity to identify and address health-related needs.

Year Two Results

Key Themes - Food Safety, Food Handling, Foodborne Illness

Food Safety

Five food safety risk factors related to employee behaviors and preparation practices have been identified by CDC as contributing to foodborne illness. These include improper holding temperatures, inadequate cooking, contaminated equipment, food from an unsafe source, and poor personal hygiene. For each year from 1988 through 1992, the most commonly reported food preparation practice that contributed to foodborne disease concerned improper holding temperature; the second concerned poor personal hygiene of food handlers.

Extension Agents currently provide food safety education to the audiences listed in the Healthy People 2010 10-5 and 10-6 objectives. Extension Agents educate consumers and work collaboratively with environmental health agencies and retail establishments to educate the food

handler in retail food establishments as well as food handlers in institutional establishments. Colorado, as well as the nation, is experiencing a trend of high rates of employee turnover in the retail food industry. The retail food industry has the additional challenges of language and literacy barriers and non-universal systems for training and certifying workers in the area of food safety. The task to provide food safety training to this dynamic audience is great and not easily handled by any one group. Hence the opportunity for collaboration in providing food safety training is not only possible but practical.

Of 1,103 participants, 662 adopted or strengthened one new behavior as a result of the program to improve their understanding of food-related risks and the scientific bases for risk management decisions.

Linkages: CSU departments of Food Science & Human Nutrition, Animal Sciences, Epidemiology and Environmental Health; state Extension specialists and county Extension faculty, Colorado Nutrition Network, Extension Nutrition Programs; Colorado Department of Public Health and Environment, Colorado Department of Agriculture, Food and Drug Administration-Denver district, Colorado Department of Education, retail food establishments, and Colorado county school districts.

Source of Federal Funds: Smith Lever, 3-D

Scope of Impact: Colorado

Integrated CE/AES work

Resources Allocated

Objective II.B: Provide certification training for food handlers.

Key Food safety practices are based on the four FightBAC! Campaign messages. They are: clean, wash hands and surface often; separate, don'' cross-contaminate; cook, cook to proper temperatures; and chill, refrigerate promptly.

Extension Agents currently provide food safety education to the audiences listed in the Healthy People 2010 objectives. Extension Agents educate consumers and work collaboratively with environmental health agencies and retail establishments to educate the food handler in retail food establishments as well as food handlers in institutional establishments. Colorado is experiencing a trend of high rates of employee turnover in the retail food industry. The retail food industry has the additional challenges of language and literacy barriers and non-universal systems for training and certifying works in the area of food safety. The task to provide food safety training to this dynamic audience is great and not easily handled by any one group. Hence the opportunity for collaboration in providing food safety training is not only possible but practical.

Projected Outputs: *Food safety certification and train-the-trainers project to deliver food safety education programs for dissemination to food handlers.*

Projected Outcomes: *70% of attendees at an Extension sponsored food certification program will report plans to adopt recommended food handling practices and increased knowledge of risks in food safety and health.*

1. Health promotion and disease prevention. Participants will enhance adoption of dietary factors related to health promotion and disease prevention.

2. Dietary Guidelines, general health, and wellness. Participants will enhance adoption of food consumption and lifestyle practices that promote good health.
3. Safe Food-Handling Practices. Participants will reduce foodborne illness risks by adopting safe food production, handling, preparation and consumption practices.
4. Risks and Responsible Practices. Participants will improve their understanding of food-related risks and the scientific bases for risk management decisions.
5. Food Resource Management. Participants will report saving money on their food bills.
6. Individual Food Security. Participants will report not running out of food by the end of the month.
7. Community Food Security. Participants will enhance knowledge, awareness, and/or action towards building community food security.
8. Community Collaboration. Communities will improve their capacity to identify and address health-related needs.

Year Two Results

Key Themes - Food Safety, Food Handling, Foodborne Illness

Linkages: CSU departments of Food Science and Human Nutrition and Animal Sciences; state specialists and county faculty; Extension Nutrition Programs; Colorado Department of Health and Environment, local health departments, congregate meal site managers, retail food industry partners.

Source of Federal Funds: Smith-Lever, USDA Nutrition Services

Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1	1	1.5	2	2	724,133
County FTE	1	8	2	3	3	842,061
Total FTE	2	9	3.5	5	5	1,566,194
Budget	173,102	389,170	297,929	422,755	422,755	

Objective II.C: Enhance red meat safety.

With the large numbers of market livestock, in addition to two of the largest beef and lamb slaughter facilities in the U.S., the quality, safety and demand for red meat is essential for the economic sustainability and profitability of the Colorado livestock industry. Because of major Escherichia coli O157:H7 outbreaks that resulted in loss of human life in the U.S. during January of 1993, in Japan during the summer of 1996 and again in the U.S. in 1997, significant public attention around the world is now focused on the incidence of food-borne illness, especially when it results from contaminated red meat products that escape detection by traditional food safety inspection methods. Outbreaks of foodborne illness, in addition to threatening public health and endangering lives, dramatically affect market growth and sales of U.S. red meat products

worldwide. Concern for foodborne illness prompted substantial reorganization of the USDA Food Safety Inspection Service (FSIS) between 1993 and 1997, and sweeping changes are currently underway as companies implement the 1996 FSIS/ USDA Pathogen Reduction/HACCP Final Rule ("Mega-Reg") that will replace antiquated forms of meat inspection.

The Meat Science Extension program will target its efforts towards interacting with producers and youth addressing the production of high quality, safe meat products. Scientific and technological advances in the industry will be disseminated via community presentations, workshops, short-courses, personal interaction, and refereed publications. Additionally, the youth sector will be targeted through 4-H market livestock carcass evaluation and 4-H/FFA career identification and meats judging events. In addition to these activities, the Meat Science Extension program will continue to provide support and information to the growing and developing Colorado Beef Quality Assurance and Meat Quality Assurance programs, through involvement with the Colorado Beef Quality Assurance Council and county level Meat Quality Assurance programs. These efforts will facilitate the production of high quality and safe meat products improving consumer satisfaction and stimulating meat product demand.

Projected Outputs*: Training programs on verification criteria and consulting to implement mandatory HACCP systems in meat packing and processing plants.*

Projected outcomes*: Increase the number of Colorado red meat producers, packers and processors who implement preventative systems to improve meat safety and quality.*

1. Reduced incidence of food-borne illness due to pathogen transmission from red meat products.
2. Increased numbers of livestock producers receiving BQA/MQA certification training.
3. Increased numbers of animals (head) being produced under BQA/MQA guidelines.
4. Increased red meat disappearance and demand.

Year Two Results

Key Themes - Food Handling, Food Safety

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Integrated CE/AES Work: Red meat quality and safety is enhanced through an ongoing AES funded project (#214) that provides research and technology transfer to producers and Extension educators. Resources from CE: .4 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1	1	1.5	2	2	724,133
County FTE	2	8	3	3	4	1,071,714

Total FTE	3	9	4.5	5	6	1,796,147
Budget	249,653	389,170	374,480	427,755	499,306	

Objective II.D: Enhance the health of Coloradans by increasing awareness and skills to manage animal diseases.

The health and well being of animals is dependent upon owner knowledge and veterinary care that varies greatly throughout the state and the surrounding states.

There are 29,500 farms in Colorado on 32.5 millions acres of land. The income from Colorado Agriculture production amounts to 4.4 billion dollars of which 69% if attributed to livestock. In addition to the above farms are approximately 10,000 small acreage (less than 35 acres) producers, the majority of which maintain animals. The major livestock and dairy producers are extremely keen and knowledgeable on animal health and well being. The majority of the small acreage producers are interested in the health and well being of their animals but some lack the experience and knowledge necessary to provide a healthy comfortable environment for the animals under their care.

Promote health and well-being, increase animal production, and reduce animal disease.

Projected Outputs: *l) Consultation by Extension veterinarians and researchers; 2) education fact sheets; 3) electronic news alerts; and 4) training teleconferences and meetings to educate key citizens.*

Projected Outcomes: *1) Increased awareness and increased number of emergency preparedness plans for animal disease threats; 2) enhanced skill/consultation among Extension personnel in handling individual consumer/producer questions on animal health; 3) increasd knowledge among animal owners, veterinarians and veterinary students in the areas of animal care to promote health and well-being.*

Key Themes – Foot /Mouth Disease

Situation

The recent outbreak of foot and mouth disease in Europe sparked a thirst for information in Americans, including animal producers. The Colorado Department of Agriculture and Cooperative Extension offices were flooded with calls from concerned citizens. Misinformation, a lack of resources and the fact that the disease has not been found in the United States for decades made it difficult to respond with clear messages.

Calling upon our mutual goal to serve Colorado residents, Cooperative Extension and the Colorado Department of Agriculture quickly responded to the risk of foot and mouth disease spreading to America and Colorado during the recent European outbreak by designing information, a system to disburse it, and protocol to prevent foot and mouth disease in Colorado and contain its spread if diagnosed here.

Colorado State Cooperative Extension and the Colorado Department of Agriculture formed a core response team of

experts including veterinarians, communicators and Cooperative Extension specialists and agents. This team partnered with officials from the U.S. Department of Agriculture; federal, state and local emergency management response; law enforcement; and government officials.

The team designed prevention strategies and information for animal producers and the general public and shared the information through train-the-trainer workshops, meetings with other agencies, fact sheets and a Web site. The team educated the agencies above and also military officials; private practice veterinarians; animal owners including ranchers; food production and agriculture organizations; food safety experts and elected officials.

The team held five trainings around the state for other officials who learned about the disease, how it is spread, Colorado's official response protocol, mental health and community considerations, and how to talk to the public and media about foot and mouth disease.

Up-to-date information was presented at each training. The trainings formed a network of professionals who then educated others in their communities about foot and mouth disease, using resources developed by the team.

Training Outcomes

- Participants included 84 Cooperative Extension professionals (agriculture, community and food safety); 23 county commissioners; 23 county or city government employees; 11 representatives of advocacy or professional groups; 3 agricultural business representatives; 6 private-practice veterinarians; and 47 unspecified professionals.
- Almost three-quarters of the participants reported that the information on Colorado's response protocol and indemnity to animal owners was all new or mostly new to them.
- Sixty percent of the participants reported that they gained new understanding of the Office of Emergency Management and the resources it can provide.
- More than half of the participants (54 percent) learned all new information about the disease and how it spreads, and about the same number (48 percent) learned new preventative measures. An additional 56 percent learned new information about how the disease affects species differently, and how those differences contribute to the spread and maintenance of the virus.
- About half of the participants stated that new information was presented in areas including biosecurity; wildlife implications; community impacts; disease transmission; mental health and emotional recovery; and roles with the media. The USDA veterinary service role was reported as new information to 44 percent of the participants, the lowest percentage.

Educational Outputs

In addition to providing training, the team developed a Web site and a notebook containing up-to-date information. Those resources included general information about foot and mouth disease and photographs of the symptoms; Colorado's response plan; the nation's response plan; fact sheets for producers, travelers, children and the general public; updates on the outbreak in the United Kingdom; and human health risk information. The most-used information on the Web site included tips for travelers, information about food safety, and the list of links to additional resources.

An educational poster that was distributed to sale barns, feed stores, large animal veterinarian offices and other places frequented by animal producers was also developed.

During the height of the UK outbreak in April and May, the Colorado State Cooperative Extension foot and mouth Web site received several thousand hits. The Web site was promoted primarily to workshop participants as an additional resource for materials and to share with others. It also served as a resource to the media.

Continuing outcomes

In May, the Colorado Senate passed a resolution commending the Colorado Department of Agriculture for its efforts with foot-and-mouth disease and bovine spongiform encephalopathy (BSE). The Senate resolution recognized the Department and the USDA Animal and Plant Health Inspection Service, Veterinary Services, for adopting the Colorado foot-and-mouth prevention and response protocol.

The Department of Agriculture, Cooperative Extension, the Colorado Office of Emergency Management, local government, the military and additional agencies are finalizing a response plan that outlines the roles of each government agency. The groups recently completed a response plan to address possible cases of foot and mouth disease before a diagnosis is confirmed. A series of regional practice response exercises are planned this winter and next spring.

Year Two Results

Of 12,560 livestock producers/managers participating in educational opportunities, 10,711 reported an increase knowledge about and adoption of best management or production practices for livestock operations.

Of 9,174 livestock producers/managers reporting, 4,130 said they would adopt research-based best management or production practices for livestock operations.

Linkages: CSU departments of Clinical Sciences, Epidemiology and Environmental Health, Pathology, Microbiology, Animal Sciences, Food Science and Human Nutrition, and Fishery and Wildlife Biology; Veterinary Medicine Diagnostic Laboratory, and county and regional faculty; Colorado Department of Agriculture, Colorado Division of Wildlife, and Colorado Department of Health and Environment.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Education and Outreach: This program will be integrated into the state Plan of Work and regional Plans of Work in the broad programming area of Improving Nutrition, Food Safety, and Health, and in the area of Sustaining Agriculture and the Environment. In 1999-2000, the Colorado Department of Agriculture funded .5 FTE of an Extension veterinarian to work in the

programming area. In 2000-2001, the State Veterinarians' Office, the CSU Veterinary Teaching Hospital, and CSU Extension are developing a statewide integrated staffing plan.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1.5	2	2.5	3	3.5	1,206,888
County FTE	2	2	3	3	4	1,071,714
Total FTE	3.5	4	5.5	6	7.5	2,278,602
Budget	297,929	346,204	471,031	519,306	644,133	

GOAL III: A Healthy Well-Nourished Population

Issue: *Nutrition plays a vital role in overall health. In fact, research has found that diet is associated with the leading causes of death, many of which are preventable–heart disease, diabetes, obesity, and several types of cancer. Cardiovascular disease and cancer together account for almost two-thirds of all deaths in the United States. Despite the importance of diet, however, Americans fail to achieve dietary recommendations laid out by the Dietary Guidelines and the Food Guide Pyramid, dietary practices which lower the risk of disease. According to the 1994-1996 Continuing Survey of Intakes of Individuals, the average number of servings from the fruit, dairy, and meat groups were below minimum serving numbers recommended in the Pyramid and servings from the grain and vegetable groups were near the bottom of recommended ranges. Calories from fats and sugars exceeded Pyramid recommendations. In Colorado, the statistics reflect these national trends. It has been estimated that 74.0% of adults and 67.7% of high school students in Colorado reported eating fewer than five servings of fruits and vegetables per day.*

Other dietary trends show that:

- *Adult females failed to meet the Recommended Dietary Allowances (RDA) for five nutrients–calcium, vitamin E, vitamin B-6, magnesium, and zinc. Adult males fell short of the RDA for vitamin E, magnesium, and zinc. Adults' low intakes of fiber, magnesium, and zinc could be improved by increasing intakes of whole grains, fruits, dark green vegetables, legumes, and lean meats and meat alternates as recommended by the Food Guide Pyramid.*
- *Fat accounted for 33 percent of calories in the American diet. Despite this decrease, only about one-third of adults met the 30 percent or less of calories from fat recommended by nutrition experts.*
- *Since 1989-91, amounts of soft drinks consumed by both women and men have surpassed their intakes of milk.*
- *Americans consume an average of 20 teaspoons of added sugars a day – accounting for 16 percent of calories.*
- *Sodium intake should be limited to no more than 2,400 milligrams per day. The average intakes from foods alone are over 4,000 milligrams for men and almost 3,000 milligrams for women.*
- *About 57 percent of Americans ate away from home on any given day. Foods eaten away from home accounted for more than 25 percent of total calorie and fat intakes.*

It is likely that these trends will continue, further warranting nutrition and health education for all populations to improve overall diet, prevent disease, and promote health.

Colorado Situation Influencing Goal II

Elderly Populations

In the 20th century, the number of persons in the United States under age 65 has tripled. At the same time, those 65 and over have increased by a factor of 11. According to the Census Bureau projections, the elderly population will more than double between now and the year 2050, to 80 million. By that year, as many as 1 in 5 Americans could be elderly. Most of this growth should occur between 2010 and 2030, when the "baby boom" generation enters their elderly years.

As individuals age, certain physiological changes occur. Lean body mass is lost resulting in an increase in body fat, decrease in basal metabolism, and a decrease in bone density. Slowing of the normal action of the digestive tract takes place. And calcium, vitamin D, and vitamin B12 absorption decreases. Nutrition plays an important role in aging. Most nutrient needs can be met through a healthy and balanced diet, which may ultimately reduce disability, the burden of chronic disease, and even dependency among the elderly. These changes document the importance of elderly nutrition education programs to promote health.

Low Income Populations

The population estimate of Colorado for 1999 is 4,056,133 persons and has been estimated to be growing at about 2.2 - 2.5 % yearly. The number of Coloradans living below the federally designated poverty line is also increasing. The number increased by almost a third from 1980 to a high of 392,938 in 1996 (the most recent data available). The poverty rate for Colorado now stands at an estimated 10.4 percent compared with 10.1 percent in 1980. Poverty rates vary by age and living arrangements. In Colorado, while the percent of children in poverty has improved slightly over the ten year period of 1985-1994, the 1995 percentage is 12.2 percent. For the elderly population, 10.5 percent of people over the age of 65 are considered low income. The proportion of families below poverty also increased from 1980 to 1990 from 7.4 percent to 8.6 percent of total population. Female single parent families have especially high poverty rates. According to the Bureau of Census' Consumer Expenditure Study, 81 percent of female single parent families nationwide receive public assistance, mostly in the form of food stamps. In Colorado, 17.3% of adults between 18 and 64 reported having no health care coverage.

Hispanic Population

The Hispanic population represents a growing cultural and ethnic presence within the U.S. and in Colorado. According to the March 1999 U.S. Current Population Survey (CPS) estimate, Hispanics currently constitute approximately 32 million individuals total, 11.7 % of the population. In Colorado, Hispanics already represent the largest minority at a rate of 14.0 %, 535,917 persons. Hispanics as a whole face nutritional and health concerns unique to their genetic admixture, culture, and overall population. Available data shows that Hispanics have significantly higher rates of overweight/obesity (almost 60 % are overweight) and diabetes (two to three times non-Hispanic whites), often in concert. Still, heart disease is the number one killer of Hispanics at a rate of 167.8 per 100,000.

Many health problems go undiagnosed in the Hispanic population due to lack of access to health care services, specific cultural and social barriers, and lack of payment for medically necessary services. Almost 40% of Hispanics in Colorado do not have health care coverage—that is the

second highest rate in the country. Forty-seven percent of Hispanics also indicated that they had their cholesterol checked in the past five years compared to 65% statewide (all populations combined). Research suggests that the dietary practices of Hispanics adversely affect their risk for several health-related conditions and diseases. Hispanics as a whole have been found to consume diets high in fat at the expense of foods high in complex carbohydrates, fiber, and fruits and vegetables. In fact, seventy-nine percent of Hispanics in Colorado reported eating fewer than five servings of fruits and vegetables per day in 1998. These statistics point to the need for culturally-appropriate and effective nutrition and health education programs to prevent chronic disease and promote awareness about warning signs of serious conditions.

Goal III Overview and Outcomes for Program Year 2001

Objective III.A: Coloradans will increase their knowledge and adoption of practices which promote healthy lifestyles.

Projected Outputs: *1) Educational programs provided at school, work, community, and health care sites to small and medium size groups; and, 2) teleconferences, individualized consultation and distance learning programs to targeted groups.*

Projected Outcomes: *Coloradans will increase their knowledge and adoption of practices which promote healthy lifestyles including; 1) balancing food intake with physical activity in order to maintain or improve weight; 2) eating less fat, less saturated fat, and less cholesterol; 3) eating more grain products, vegetables, and fruits and a variety of foods; 4) moderation in salt and sodium and sugars; and, 5) increase moderation among persons who drink alcohol beverages.*

Year Two Results

Key Themes - Human Nutrition, Human Health

Linkages: (ENP) CSU Department of Food Science and Human Nutrition, 29 County Extension Offices; (CNN) CSU Department of Food Science and Human Nutrition, Cooperative Extension Agents, CSU Department of Human Development and Family Studies; CSU Department of Marketing**;** University of Colorado Health Sciences Center; Colorado Department of Education (School Lunch and Breakfast Program, TEAM Nutrition); Colorado Department of Human Services (Food Stamps, Commodity Supplemental Food Program, TEFAP, Division of Aging Services); Colorado Department of Public Health and Environment (WIC, CACFP); Colorado Head Start Association, Food Bank of the Rockies, Care and Share. (Dining with Diabetes) Colorado Diabetes Control Program, Medical communities in each of the five pilot counties (includes local hospitals, community health centers, local county health departments, existing diabetes coalitions, etc.)

ENP Collaborating Agencies:

Schools and Child-Care Systems–

Alamosa Open High School (Pregnant & Parenting Teenagers) –San Luis Valley
Board of Cooperative Education Services – Otero Co.
Byron-Syring Delta Center – Rio Grande Co.
Centennial Elementary Parents as Teachers Program
Child Development Center – Crowley Co.
Child Development Center – Otero Co.
Community Partnership for Child Development (Head Start, Evenstart, Free to Grow Program)
Corazon Alternative School
Fairview High School Teen Parents--Boulder Co.
Florence Crittenton Alternative School – Denver Co.
Greeley Central High School – Weld Co.
Harrison High School Pregnant Teen Program – El Paso
Keating Alternative School
La Lave Family Literacy Services – Alamosa Co, Rio Grande Co.
Las Animas School District Re-1
Lincoln Middle School Parents
Longmont Adult Education – Boulder Co.
McClain Community High School – Jefferson Co.
Monterey Elementary Parents as Teachers Group
Poudre R-1 School District Teen Parent Program – Larimer Co.
Rocky Mountain SER – Otero Co., Denver Co.
School District 11 Transitions Program – El Paso Co.
School District RE1J – Gunnison Co.
Skyline High School Life Skills Class
St. Vrain Valley Teen Parent Program – Boulder Co.
Tesla Education Opportunity Program – El Paso Co.
The Village Preschool
Thompson R-1 School District Teen Parent Program @ Ferguson High School – Larimer Co.
Trinidad Public School System – Las Animas Co.
Trinidad State Junior College – Las Animas Co.
San Luis Valley Education Center- San Luis Valley
West Middle School Parents Group
Youth Energy Alternatives Program

Health Care Systems–

Alamosa County Public Health – San Luis Valley
American Lung Association – Pueblo Co.
Arapahoe County Tri-County Health Dept.
Arapahoe House – Arapahoe Co.
Argus Home Healthcare – Pueblo Co.
Boulder Mental Health—Boulder Co.
Cenikor – Jefferson Co.
Colorado Dept. of Public Health & Environment
Costilla County Nursing Service: Home Health Department Commodities Office
Costilla County Public Health Nurses
Gunnison County Public Health Department
Haven House- CU Health Sciences Center, (Fort Logan Campus) – Denver Co.
Healthy Pueblo 2000 Group
Libby Bortz Assisted Living Center
Lincare Home Healthcare – Pueblo Co.

Littleton Senior Housing – Arapahoe Co.
Longmont United Hospital – Boulder Co.
Monfort Children's Clinic – Weld Co.
Options for Long Term Care – San Luis Valley
Poudre Health Services – Larimer Co.
Poudre Valley Prenatal Care – Larimer Co.
Residential Treatment Center – Weld Co.
Rocky Mountain Prevention Research Center – San Luis Valley
San Luis Valley Area Health Education Center
San Luis Valley Mental Health Center
San Luis Valley Regional Medical Center
Spectra Pregnancy Center
Sunrise Community Health Center – Weld Co.
Valley Wide Health Services – San Luis Valley
Weld County Health Department
Women, Infant, & Children (WIC) – Larimer, Otero, Crowley Co.

Social Services & Housing–

Adams State College Family Housing – Alamosa Co.
Alamosa County Dept. of Social Services
Arapahoe County Dept. of Social Services
Arapahoe County Employment & Training Division
Arapahoe County Food Stamp Office
Arapahoe County Family Self-Sufficiency Unit
Arapahoe/Douglas Works!
Azteca Apartments – Pueblo Co.
Boulder Aging Services
Boulder Community Foodshare
Boulder County Child Care Assistance Program
Boulder County Housing
Boulder Emergency Family Assistance
Bridgeway – Jefferson Co.
Care & Share, Food Bank for Southern Colorado – El Paso Co., San Luis Valley
Casa Del Sol Senior Housing
Centennial Village Senior Housing – Weld Co.
City of Boulder Housing
Colorado Works Employment Program – Larimer Co.
Conejos County Dept. of Social Services
Costilla County Dept. of Social Services
Costilla County Housing Authority
Country Manor Senior Housing
Crowley County Social Services
Denver Adult Services
Denver County Food Assistance Program
Denver County Housing Authority
Denver County Social Services
DMA Plaza for Seniors – Larimer Co.
Englewood Senior Housing
Equal Opportunities Program – El Paso Co.
First Steps of Weld County

Food Bank of the Rockies - Denver Co.
Fort Collins Employment & Training Services – Larimer Co.
Fort Collins Housing Authority – Larimer Co.
Fort Collins Kid Care – Larimer Co.
Glendale Family Center
Governor's Farm Senior Housing – Weld Co.
Greeley Manor – Weld Co.
Greeley Senior Housing – Weld Co.
Gunnison County Dept. of Social Services
Gunnison County Housing Authority
Housing Authority of Pueblo
Huerfano County Dept. of Social Services
Jefferson County Dept. of Health & Environ.
Jefferson County Human Services/Tri-County Workforce Development Center
La Gente Family Advocacy Programs – San Luis Valley
Lamar Housing Authority – Prowers Co.
La Puente/Adelante – Alamosa Co.
Las Animas County Dept. of Social Services
Loveland Employment & Train. Services – Larimer Co.
Loveland Kid Care – Larimer Co.
Oakbrook I Apartments – Larimer Co.
Otero County Social Services Dept.
Posada Homeless Family Shelter
Prowers County Social Services
Pueblo County Dept of Housing & Human Svs.
Pueblo County Dept. of Social Services
Rio Grande-Mineral Counties Dept. of Social Services
Saguache County Dept. of Social Services
Six Points – Gunnison Co.
Southeast Aurora Family Resource Center
Sparks Residential Supportive Services – Pueblo Co.
Springfield Court Apartments – Larimer Co.
St. Thomas Food Bank
Tri-Lakes Cares Food Pantry
Walsenburg Housing Authority – Huerfano Co.
Weld County Social Services and Human Services
Weld Food Bank – Weld Co.
Workforce - Boulder Co.

Community Services–

Action Against Domestic Assault
Action Against Hunger and Malnutrition – San Luis Valley
Advocates Against Domestic Assault
Aggie Village Single Parent Support Grp – Larimer Co.
Alamosa Senior Center – San Luis Valley
Aurora Family Resource Center
Bellevue Senior Center – Larimer Co.
Blanca-Ft. Garland Community Center–San Luis Valley
Boulder Project Self-Sufficiency
Boulder Senior Center

Boys and Girls Club of the San Luis Valley
Child Advocacy Resource & Education – Weld Co.
Child and Adult Care Food Program
Children's Services of Colorado
Coalition for the Homeless
CO Coalition on Hunger & Food Policy Group
Colorado Office of Resource & Referral Agencies, Inc – San Luis Valley
Community Infant Project
Corazon Senior Center
Crowley Ladies Society – Crowley Co.
Education and Life Training Center – Larimer Co.
Family Independence Initiative Project
Family Tree/Karlis Center
Fostering Better Communities
Fowler Senior Center – Crowley Co.
Fountain Valley Senior Center – El Paso Co.
Hancock Senior Center – El Paso Co.
Hillside Community Center – El Paso Co.
Jefferson County Adolescent Pregnancy &
Parenting Program (JCAPPP) – Jefferson Co.
Joseph Edwards Senior Center - Pueblo Co.
La Junta Senior Citizens Center – Otero Co.
Las Animas/Huerfano County of Council of Governments
Longmont Career Development Center – Boulder Co.
Louisville Senior Center – Boulder Co.
Meadows Park Community Center – El Paso Co.
Mi Casa Resource Center for Women – Denver Co.
Monte Vista Public Library – Rio Grande Co.
Morningstar Adult Day Care
Nine News Health Fair – Gunnison Co.
Northside Aztlan Center – Larimer Co.
Ordway Senior Citizens – Crowley Co.
Partners for Healthy Families – Jefferson Co.
Pueblo Parks & Recreation
Pueblo Senior Resource Development Agency
Sage Center – Rocky Ford – Otero Co.
Salvation Army – Denver Co., Boulder Co.
San Luis Valley Area on Aging
San Luis Valley Cattlewomen's Association
San Luis Valley Community Connections
Senior Nutrition Program – Larimer Co.
Senior's Resource Center – Jefferson Co.
Share Colorado – El Paso Co., Larimer Co.
Share Our Strength/Operation Frontline – Weld Co., Larimer Co.
Southern CO Developmental Disability Services – Las Animas Co.
Taking Off Pounds Sensibly – Pueblo Co.
Teen Lunch Bunch – Gunnison Co.
Tri-County Senior Center – San Luis Valley
Volunteers of America

Walsenburg Community Center – Huerfano Co.
Wellington Senior Center
Yellow House Senior Group
For Profit Organizations–
King Sooper's Grocery Stores – Colorado
Mercy Housing Services Corp. – El Paso Co.
Safeway Grocery Stores - Colorado
Ministerial and Church-Related Groups--
Boulder Interfaith – Boulder Co.
Baptist Church – Saguache Co.
Catholic Charities Northern – Larimer Co.
Catholic Community Services
Catholic Churches - Costilla Co., Saguache Co.
First Presbyterian Church – Larimer Co.
Lutheran Services Inn Between Program
Las Animas Pastoral Center
Nederland Presbyterian Church
Presbyterian Towers
Sister Carmen Center
St. Joseph's Church
Valley Church of the Nazarene – San Luis Valley
Court Systems–
Colorado Dept. of Corrections – Crowley & Pueblo Co.
Larimer County Community Corrections
Larimer County Detention Center
Transitional Center for Women – Weld Co.
Weld County Community Corrections Board
Youth Offender System – Pueblo Co.

Objective III.B: Communities will improve their capacity to address health and nutrition related needs.

Community food security is focused on meeting the food needs of low income communities, but is much broader. Overall it seeks to build food resources within a community--rather than encourage dependence on outside sources--to meet its own needs. It involves a wide range of activities, such as creating and expanding local infrastructures, increasing economic and job security, strengthening the federal nutrition assistance safety net, bolstering supplement food from nonprofit groups, improving community food production and marketing, boosting education and awareness, and improving research and evaluation. It integrates aspects of many different fields, such as public health, ecology, and community economic development.

Projected Outputs: *Brochures, personal consultation, and letters describing available resources to promote health and nutrition in the community from Extension educators and state specialists to key community organizations, professionals in the health and education arenas and agency and governmental managers.*

Projected Outcomes: *Increase in the 1) number of joint health and nutrition related educational sessions offered within the community; 2) number of organizations who request educational sessions from Extension educators; 3) number of communities who institute health needs assessments; 4) number of community groups who initiate health related activities, healthy food choices, or volunteerism in health and nutrition related activities; and, 5) number of community members who are trained as volunteers in La Cocina Saludable Specialists in master food preservers, or team nutrition members.*

Year Two Results

Key Themes - Human Nutrition, Human Health

Colorado Nutrition Network Outcomes

Of 1,134 participants in workshops to promote general health and wellness, 1,028 actually plan to adopt or strengthen one food consumption or lifestyle practice behavior that would promote good health.

Linkages: CSU departments of Food Science and Human Nutrition and Health and Exercise Science County Extension faculty; Colorado Department of Health and Environment, Colorado Department of Local Affairs, Colorado Department of Agriculture, American Heart Association, Colorado Nutrition Network, Head Start.

Source of Federal Funds:

Scope of Impact:

Integrated CE/AES work:

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	2	2	3	4	4	1,544,816,
County FTE	3	8	3	3	3	1,148,265
Total FTE	5	10	6	7	7	2,693,081
Budget	422,755	445,196	519,306	615,858	615,858	

Objective III.C: Improve the nutritional status and health of school and community athletes.

Building Youth Through Effective Coaching (BYTEC) started as a two-day class providing continuing education training for area school and town recreation coaches on the topics of nutrition, physical development and training practices, and youth development. Using campus staff and private consultants, credit classes are offered to coaches in rural Colorado.

In the rural area of Elbert County, Colorado, over 1800 students are impacted each year through athletic programs.

Informal visitations with athletic directors in Elbert County and local parent groups revealed that coaches and students would benefit from a program that would bring them up to date on current practices within the youth athletic arena and, at the same time, help them refocus their programs as youth development opportunities.

Coaches in rural Colorado are not only long distances from campuses but have limited access to quality in-depth programs in the area of coaching. In addition certified teachers that were also coaching needed college credits to advance on the salary scale and renew their certificates. There was also a concern expressed during the informal visitations that some coaches were losing the youth development focus of their programs.

Projected Outputs:

Two-day workshops for community coaches and athletic directors on topics related to basic nutrition of performance, weight loss, gain, or maintenance.

Projected Outcomes:

- Participants will demonstrate an increase in their knowledge of the topics by 25%.
- Participants will take and use at least two new ideas in their programs.
- Increase in requests for educational materials and presentations to coaches, athletes, and parents.
- Decrease in athletic injuries and health problems related to inappropriate use of exercise, supplements, stimulants, or unbalanced diets.

Educational Strategies:

The BYTEC program brought the University to the people, bridged the gap between research and application, and improved the quality of instruction for young athletes. The program also provided participants with techniques that help them establish a positive atmosphere for youth development.

The program utilized five instructors who incorporated numerous hands on activities, small group work, and lectures over a two-day period. Some activities that were used included hands on demonstrations in the weight room with lifting and stretching techniques and small group work in the areas of nutrition and parent/coach/player relationships. The program covered the following topics:

Energy Systems, How Muscles Work, Ergogenic Aids
Hydration and Fluid Balance
Lifting and Stretching Techniques
Principles of Training
Nutrition Fundamentals, Meal Planning, Eating Disorders
Communication, Ethics in Coaching, Parent Meetings, Conflict Management
Forgiveness and Apologies, Organization, Practice Planning
Sports First Aid, Legal Responsibilities
How Students Learn, Promoting Lifelong Activity

Year One Results

Pre and post evaluations were given to each participant which asked them to rate their knowledge on a scale of one to ten, with one being the least amount of knowledge and ten being very proficient. The participants were also asked to list any ideas that they would take and use in their program.

Outcomes:

Results of the evaluations showed that participants' knowledge increased an average of 31%. The average knowledge rating prior to the program was 5.44 and 7.14 after the program. On the average participants listed three new ideas that they felt they would take back and use in their programs.

Coaches who participated were asked to list ideas that they would take and use in their program. Listed below are sample responses from the list of sixty five ideas that participants indicated they would use:

- Provide improved information on supplements
- Use new motivation techniques for students and parents
- Emphasize better dietary habits
- Re-introduce the importance of nutrition
- Promote drinking water during practices
- Implement better strength training and progression schedule
- New exercises with abs, plyo's, and lifting techniques
- Use Plyometrics in conditioning programs
- Ergogenics-filtering the media and any misleading information about supplements

Year Two Results

Two years later a random sample of participants was surveyed over the phone and asked "What changes did you make because of the class and how did that impact kids?" These participants indicated the following as additions to programs and impacts on students:

- Developed and distributed nutritional packets to weight lifting classes and students reported that they were eating breakfast more often due to the information.
- Incorporated more nutrition information for parents and kids
- Improved communication with athletes and parents
- Improved relationships with kids and parents because of better communication
- Reported more parent support for kids and coaches
- Increased emphasis on water intake during practices
- Increased availability of water and increased number of breaks
- Developed a new handbook that was more professional and students commented that the atmosphere was more "high class."
- Observed fewer muscle cramps during practices
- Observed students being more self advocating for water intake and better nutrition due to the increased emphasis by coaches.
- Increased the time spent and added more stretching activities in pre-practice and game situations.
- Increased parent involvement and education of their program by creating car pool groups and dinner groups which lead to better information dissemination so that kids would have less stress and generate a sense of community and team.

Information collected from the participants on evaluation forms precipitated several changes. The

program has been lengthened to four days, and units have been enhanced as requested by the participants. Additional personnel have been added to improve the depth of the content. Two notebooks with information about each topic will be available instead of one.

Participants commented on the overall program as "Great Stuff," "Can't wait to use it," "Best seminar I have had," and "Very good and interesting." The response to the program two years later during the phone survey was still very positive.

Linkages: Departments of Health and Exercise Science, Food Science and Human Nutrition, Colorado State Coaches Association, Colorado School District

Source of Federal Funds: Smith Lever

Scope of Impact: Colorado specific

GOAL IV: Greater harmony between agriculture and the environment.

Issue: *Agriculture is still a strong contributor to the economy of Colorado and citizens of the state are increasingly concerned about protecting the rich natural resources. Population growth is largely accounted for by persons retiring to Colorado for recreational environments, and by persons who seek a high quality of life including the enjoyment of resources of a beautiful and healthy environment. Rapid population growth has transformed grasslands and irrigated crop lands into suburban housing developments. An increasing number of property owners with acreages from 1 to 50 are finding threats to their chosen life style. Waste management, water quality control, noxious weed management, animal health, pasture management and conflicts with wildlife are all challenges to unprepared small acreage owners.*

With the increasing numbers of urban citizens wielding political power at the county commission and legislative levels, the sustainability of a healthy agricultural industry and reasonable environmental regulations is increasingly difficult. Among agriculture producers there is a need to increase the use of consistent records for decision making, particularly in those areas related to the application of chemicals and pesticides of specific water management techniques. There are approximately three million acres of irrigated crop land in Colorado. Salt affected soils and challenges to water rights are increasingly problematic for communities and land owners.

Prairie dogs have been viewed as a major agricultural pest by landowners in Colorado. According to the Colorado Agricultural Statistics Service, about 1.5 million acres were occupied by prairie dogs in Colorado. Estimates of damage caused by prairie dogs to agriculture are $10 million, and over half the acreage and damage was attributed to black-tailed prairie dogs. Although black-tailed prairie dogs appear fairly abundant in Colorado, their populations have been significantly reduced across their historic range. Thus, environmental groups have petitioned the U.S. Fish and Wildlife Service to list the black-tailed prairie dog as a threatened species. With these conflicting values and needs, it is apparent that some prairie dog populations will need to be protected/preserved whereas others may need to be controlled to minimize conflicts.

Colorado Situation Influencing Goal IV

Insects and Mites

Management of insect and mite pests challenges Colorado field crop producers because (1) pests vary in abundance and economic importance; (2) pest management tools are in a state of flux; and (3) societal concerns about pesticide use in production agriculture are increasing.

The major field crops grown in Colorado are corn, wheat and alfalfa hay. Other important crops include dry bean, sunflower, sorghum, barley and proso millet. The total acreage devoted to these crops exceeds 5.5 million. Their production forms an important part of many rural economies. For example, wheat is produced in 41 Colorado counties.

All Colorado field crops are affected by a complex of insect and mite pests. The major pests of corn are Banks grass mite, European corn borer, western bean cutworm and western corn rootworm, while wheat is attacked by army cutworm, brown wheat mite, pale western cutworm, Russian wheat aphid and wheat curl mite. Field crop pests vary in economic importance, but can be quite significant. For example, more than 4 million acres of Colorado wheat were sprayed for Russian wheat aphid during the period 1986 - 1998. The economic impact of this pest during the same period is estimated to be in excess of $125 million in lost production and increased costs.

Management of insect and mite pests presents a dynamic challenge to producers of field crops in Colorado for several reasons.

1. Pest abundance varies both temporally and spatially. A given field may be infested at economically significant levels, while neighboring fields may be spared. Economic infestations may be widespread in one year and rare in the next.
2. The relative economic status of field crop pests varies as well. During periods of depressed commodity prices pest management decisions become more difficult as treatment costs represent larger proportions of profit margins. Pest status is more clearly defined and treatment decisions are more easily justified during periods of strong prices.
3. Pest management tools are in a state of flux as well. On the one hand, the number of traditional chemical pesticides available for use against these pests is diminishing at an unprecedented rate. On the other hand, new alternatives, particularly plant-delivered pesticides such as Bt corn and other "GMO" traits, can be expected to increase rapidly.
4. Societal concerns about pesticide use in production agriculture are also increasing. Growers, particularly along the Front Range, are under increasing pressure to find alternatives to their use of traditional chemical pesticides. It is currently unclear as to whether plant-delivered pesticides will be considered acceptable alternatives.

Weeds

Invasive weeds are an insidious threat to agriculture and natural areas in Colorado and elsewhere in the western United States. Invasive weeds decrease the carrying capacity of rangeland for livestock and wildlife; decrease biodiversity that evolved among members of native plant communities in our state; interfere with crop production; decrease land values; increase soil erosion; and rob the aesthetic beauty of our state's natural areas. A Colorado

survey conducted in 1998 reported that almost 1,000,000 acres were infested with 11 invasive weeds. Invasive weeds can increase their populations at alarming rates; for example, acres infested with leafy spurge increased from 44,800 acres in 1989 to 96,800 acres in 1998.

Because of their widespread distribution and impact in our state, invasive weeds are a serious problem for all Coloradans, but especially for ranchers, farmers, small acreage owners, and public land managers associated with city, county, state, and federal lands. There is a distinct need for greater awareness regarding invasive weeds among private and public land managers as well as decision makers such as county commissioners, state legislators and the administration, and members of Congress and the federal administration. Education is a powerful vehicle to foster increased awareness. More information is needed with regards to mechanisms of weed invasion and expansion to better understand their ecology. Understanding invasive weed ecology more

thoroughly will help to design integrated weed management strategies that foster use of successional weed management to create desirable plant communities that help achieve land management goals.

Relevant research that increases our understanding of invasive weed ecology is needed as well as research that defines combinations of control methods to create successional weed management approaches. Summarizing this relevant research in written publications and orally in public presentations is an excellent means to produce the educational information necessary to heighten the public's awareness with regards to the ecology, impact, and management of invasive weeds.

Crops and other plants of interest are grown in a wide variety of agroecosystems and environments. Both dryland and irrigated cropping systems are extremely important in Colorado. This variety provides a tremendous challenge to the effective management of weeds, insect pests and plant diseases. Crops are infested with or compete with an amazing array of pests that reduce yield and quality. As a result pest management is one of the most costly inputs growers (and ultimately consumers) must finance every year. In 1998, Colorado growers reported that $90,157,000 were spent on pesticide inputs alone, the total input expenses were $4,115,610,000 (Colorado Agricultural Statistics, 2000).

A Pest Management Center (PMC) is being formed with a stakeholder advisory board. The Minor Crop portion of the program has already established a stakeholder board. The Pesticide Applicator Training portion fo the program meets jointly with the Colorado Department of Agriculture's Division of Plant Industries' Pesticide Section and the Applicator Workshop providers for direction and feedback.

Goal IV Overview and Outcomes for Program Year 2001

Objective IV.A: Increase the adoption of research based best management practices to control weeds, insects, disease and nematodes for wise use of agriculture chemicals and for ground water protection.

Projected Outputs: *1) Resource manuals and research summaries on pesticides, fertilizers, and nutrient management; 2) best management practices demonstrations; 3) field schools to education crop advisors and producers; 4) development of best management practice manuals for irrigated corn production, alfalfa, and legume production; and 5) Provide clientele with the reasons why invasive weeds should be managed and how to effectively manage them.*

Projected Outcomes: *1) Increased producer adoption of best management practices such as integrated management and biological controls developed with research in Colorado; 2) decrease in ground water nitrite levels; 3) reduced crop loss and lower production costs due to weeds and pests; and 4) an increase of 25% in the number of organized invasive weed*

management areas in Colorado during 2001 and double over the next 5 years; 5) If field crop producers make decisions in response to pest situations then insecticide and miticide use should fluctuate as pest populations fluctuate. Pest activity should correlate with pesticide use; 6) If a chemical control alternative is viable then adoption of that alternative should be measurable because producers need ways to cut costs and reduce environmental impact.

Year Two Results

Key Themes - Integrated Pest Management, Other: Invasive Species

Noxious Weed Management Outputs

Over the next 5 years, the number of organized weed management areas in Colorado will double. Weed management areas typically surpass political boundaries and usually are formed around logical geographical barriers of weed movement. These often are watersheds, but landowner associations also form small weed management areas. At either extreme, the formation of weed management areas is founded within the concept of the Enlibra Doctrine created by the Western Governors' Association. County Commissioners will be a driving force behind the increase in weed management areas because of money currently available through the state Noxious Weed Management Fund, the National Fish and Wildlife Federation funds, and new monies that will be made available after pending federal legislation is passed by Congress. Improved organization and coordination will occur as the number of weed management areas increases and thus, the number of acres infested with invasive weeds that are being managed also will double over the next 5 years. Continued education of state legislators and the Governor's administration will foster an increase in the amount of money that the Legislature will make available for the Noxious Weed Management Fund. Colorado State University is trying to create an organized, statewide outreach program on invasive weeds and the continued education of our state government officials will help to make this plan become reality. Continued education of Congress and the President's administration will help make available significant increases in funds for which weed management areas within states can compete. Organized weed management areas will utilize a successional weed management framework to achieve pre-determined land management goals.

Linkages: CSU departments of Bioagricultural Sciences and Pest Management, Soil and Crop Sciences and Chemical and Bioresource Engineering (Civil Engineering), state, regional, and county faculty; U.S. Forest Service, Bureau of Land Management, Colorado Division of Wildlife, Colorado State Parks, County Weed Districts, Colorado Dept. of Transportation, Colorado Department of Agriculture, Colorado Department Health and Environment, Colorado State Legislature, specific commodity groups, counterpart specialists and departments in western Nebraska, Wyoming and Montana.

Source of Federal Funds: Smith-Lever

Scope of Impact: Multi-State with Montana, Nebraska, Arizona, and Wyoming.

Integrated CE/AEA Work: Ongoing research on projects on biological and ecological weed management and pest management practices (#221, 618 and 646) provides information to assist Extension educators and producers. Resources from CE: 1.3 FTEs.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	2.5	3	4	4	4	1,689,643
County FTE	1	6	2	3	4	918,612
Total FTE	3.5	9	6	7	8	2,608,255
Budget	317,929	417,936	539,307	615,858	692,409	

Objective IV.B: Increase the effective management of pests in agriculture systems and landscapes.

Colorado State University (CSU) has been an active participant in the Smith-Lever 3 (d) federally funded Cooperative Extension Integrated Pest Management (IPM) program through its statewide Cooperative Extension IPM effort since 1978. The basic work plan for Colorado IPM was developed in 1978 based on guidelines provided by USDA/CES.

The initial program area, potato IPM in the San Luis Valley, was initiated in 1974. These efforts build upon and complemented the excellent seed certification program already in operation at that time in the San Luis Valley. By 1983 this program had been completely turned over to area potato growers. IPM programming and implementation in Colorado to date has been along single crop lines targeting multiple pest/disease problems. IPM programs in SLV Potato IPM, Western Slope Fruit IPM, and Urban IPM are continuing with grower control and funding. The San Luis Valley Potato IPM program was expanded into a High Valley Irrigated Crops IPM program that integrated alfalfa and small grains. That effort was supported by the Water Quality Project and local growers. A potato late blight exclusion component also was added. Golden Plains Corn Survey/IPM and Bean IPM are two IPM programs that are to be the basis of a High Plains Irrigated Crops IPM implementation program that will also include potato and sugarbeet. An integrated implementation team is planned in the area from growers, agri-industry, environmental/consumer and scientists from a variety of organizations. This project will concentrate in northeastern Colorado and adjacent areas in the Nebraska Panhandle and eastern Wyoming.

Present IPM implementation in the target area has been along commodity lines. The Golden Plains Pest Survey program is principally an insect monitoring, scouting and forecasting program. It was jointly funded by USDA/CE IPM, growers, and industry. Now it is completely funded by participants (growers, agri-industry)Bean IPM on the principal diseases is well established. A comprehensive weather station system and forecasting program is in place. A 5-stage model developed by the IPM team uses data on the previous season's rust pressure, evidence of rust survival (volunteer bean infection), rainfall and temperature conditions during volunteer emergence, subsequent rainfall and temperature conditions during crop growth and plant stage when initial infection occurs to determine spray dates. The Golden Plains Pest Survey system utilizes six radio stations and eleven newspapers in addition to 1788 direct FAX Alerts to

subscribers. In the Bean IPM program, weather information (COAGNET) is collected in cooperation with USDA and along with pest/disease information carried by DTN, Pest Alert, radio etc. Also weekly updates (BEANET & ONIONET) furnished to 2000 growers and commercial subscribers. These communication systems will be integrated along with the PEST ALERT newsletter that now is carried on the World Wide Web, by e-mail and hard copy to subscribers.

Historically the Urban IPM program in Colorado has focused on Master Gardener training, green industry training and support and a youth awareness program. A major component has been proper diagnosis of plant pest problems and recommendations of integrated pest management strategies through the Metro Area Plant Diagnostic Clinic and Education program, located in the Denver metropolitan area (Jefferson County).

The majority of the State's population (79%) lives in an urban area. As population numbers are projected to continue to increase over the next ten years, while Urban IPM staff support is not, it is imperative that Colorado's Urban IPM program be enhanced. The expanded goal of urban IPM is to expand the training and information, already offered to Metro area Diagnostic Clinic volunteers in Jefferson County, to Extension volunteers and green industry workers throughout the region. Areas of emphasis will be in pest diagnosis and management solutions, emphasizing IPM techniques and environmentally sound practices.

***Projected Outputs**: 1) Electronic newsletter (pest alert); 2) web site; 3) fact sheets; 4) a multi-crop irrigated IPM system in northeastern Colorado rather than single commodity programs;* 5) *advanced training to Master Gardeners and Green Industry (horticulture professionals) in diagnostics and IPM tactics; 6) a core or standardized curriculum for diagnostic clinic/IPM training; 7) diagnostic capabilities with the use of digital diagnostic equipment; 8) establishing a website to promote IPM information; and 9) a school-based IPM program.*

***Projected Outcomes:** 1) Enhanced grower/crop consultant/master gardener understanding of the ecological and economic impact of pests on crop production; 2) increased use of non-chemical pest management alternatives; 3) reduction in crop losses due to pests; 4) reduced pesticide use or change to "lower risk" pesticides; 5) improved commercial producers profit margin; and 6) increased IPM awareness by teachers, administrators, facility maintenance professionals and students (K-12).*

Year Two Results

Key Theme - Integrated Pest Management

Management of Pests in Agricultural Systems Outputs

- Of the 100 managers who participated, 80 plan to increase use of best management practices; 10 of 18 green industry professionals plan to use best management practices for horticultural decisions.
- Of 3,769 participants, 1,794 plan to adopt research-based best management practices for agricultural chemicals, ground water protection and control of weeds, insects, nematode diseases and other pests.
- Improved weed, disease, and/or pest control resulted in a reduced crop loss and/or lower production costs on

227,839 acres according to land manager reports.

Management of Pests in Agricultural Systems Outcomes

Linkages: CSU departments of Bioagricultural Sciences and Pest Management, Rangeland Ecosystem Science, Soil and Crop Sciences and Chemical and Bioresource Engineering, CSU College of Forestry, CSU Agricultural Experiment Station, and state, regional and county faculty; USDA-ARS, Colorado Climate Center, Colorado Department of Agriculture, Colorado Department Health and Environment, Colorado State Legislature, United States of America Environmental Protection Agency, United States of America Animal Plant Health Inspection Service, Colorado Water Quality Task Force, and specific commodity groups.

Source of Federal Funds: Smith-Lever
Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	6	4	8	8	9	3,765,489
County FTE	2	2	3	4	4	1,224,816
Total FTE	8	6	11	12	13	4,990,305
Budget	732,408	308,143	1,002,061	1,078,612	1,175,163	

Objective IV.C: Enhance wise soil management decision making.

The USDA/EPA Joint National AFO Strategy released in 1999 proclaimed a national expectation for all animal feeding operations to develop and implement Comprehensive Nutrient Management Plans. According to the USDA-Natural Resources Conservation Service, there are approximately 1500 animal feeding operations in Colorado, all of which need to develop Comprehensive Nutrient Management Plans.

The implementation of Amendment 14 in Colorado begun in 1999 set a precedent for air quality regulation in agriculture. Air quality concerns continue to mount including odor, dust, greenhouse gases, and ammonia emissions.

More livestock producers are composting now than in the past and are looking for ways to market their manure. Using manure or composted manure for high-value uses that benefit from manure's soil amending properties, not only its fertilizer value, can lead to greater affordable hauling distances. Thus, manure concentration and water quality impairment can be reduced in some areas, while improving soil quality in other areas.

Projected Outputs: *1) Manure management(Comprehensive Nutrient Management) plan workshops; 2) on-farm best management practice demonstrations; 3) field days; and 4) manure*

management publications.

Projected Outcomes: *1) Increase in number of land managers who base manure and fertilizer decision on soil testing; 2) reduction of nitrate contamination; and 3) AFOs that want to implement a CNMP by 2009 and will do so.*

Year Two Results

Key Themes - Agricultural Waste Management, Soil Quality

Agricultural producers and land managers who participated in education opportunities designed to increase their knowledge about best management practices and allow them to improve acreages they manage by integrating production practices with environmentally sound decision-making were polled for the impact of the experience.

Outcomes:

- Agricultural producers/land managers who reported said they base salinity-management decisions on soil-testing results in 14 out of 62 instances.

Linkages: CSU departments of Soil and Crop Sciences, Bioagriculture Science and Pest Management and Food Science and Human Nutrition, CSU Master Gardener Program; Colorado Department of Agriculture, Colorado Department of Health and Environment, crop consultant groups, Natural Resources Conservation Service, and green industry leaders and producers.

Source of Federal Funds: Smith-Lever, Hatch

Scope of Impact: State Specific

Integrated CE/AES Work: Ongoing research project (#685) to determine manured crop land evidence of salinity levels, nitrate leaching, and pest populations provides information for Extension educators on helping producers manage nutrient applications. Resources from CE: .3 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1.5	1	2	3	3	1,110,337
County FTE	2.5	2	3	4	5	1,339,643
Total FTE	4.0	3	5	7	8	2,449,980
Budget	336,205	139,312	422,755	595,857	672,408	

Objective IV.D: Enhance adoption of research-based management practices in the green industry of Colorado.

Since 1990 the annual population growth in Colorado has averaged 3.1%. By 2010, the Colorado population is estimated to grow to 4,892,567 with 79% in urban settings. As determined by the 1993 GreenCo industry survey, the average household in Colorado has an annual expenditure for

horticulture-related products and services of $1000. The demand for information from both the commercial and home horticulture segments has increased accordingly.

New residents find their plant-growing experiences don't always apply to Colorado's high-altitude, pests, available water supplies and other environmental conditions. Pest Management is a major concern to Green Industry businesses and goes hand in hand with growth related problems. The biology of selected horticultural pests and potentially damaging new pests is poorly understood and requires further investigation to develop effective management recommendations. Evolving social and environmental concerns present pest management challenges particularly where pesticide resistance has developed or available pesticides have changed. Environmental and ecological concerns on the minds of Coloradans include chemical and pesticide use and disposal, waste management practices, weather and climate effects on plants, and a desire to see ecologically sensitive approaches to natural resource and land use. Information to allow residents to grow plants more successfully while going easy on the environment is a priority of Coloradans.

Colorado's horticultural industry has grown in response to the demand posed by general growth in the state. The value of various horticultural industry segments in sales terms, based on 1993 data survey, are: green industry including turf-related - $1.37 billion, greenhouse - $170 M, commercial vegetable - $130 M and commercial fruit - $20 M.

Growth has triggered changes for both horticultural consumers and the state's green industry. Consumers are presented with more plant and hard goods choices, a greater selection of suppliers, increased sources for horticultural information and changes in the technology of information delivery. The green industry is faced with more demanding and increased numbers of customers, increased competition, changes in economy and changes in social and regulatory climate.

Master Gardeners

Colorado Master Gardeners are both a target audience and a delivery means to the broader public. Community impact expands as staff empower Master Gardeners to become proactive in their own circle of influence. Seventeen percent of the Master Gardeners are employed in the Green industry.

Basic training for CMG volunteers includes a standardized, state-sponsored curriculum with 60 hours of classroom instruction taught by county staff, state specialists, and other local horticultural experts. Some county programs add additional instruction on topics of local interest. In addition, local programs are expected to offer a variety of continuing education opportunities.

Projected Outputs: *Educational materials, including, 1) computer graphic slides; 2) Green Scene Newsletter; 3) PlantTalk Colorado message scripts; 4) introductory level school at the Annual ProGreen Conference; and 5) Master Gardening Training..*

Projected Outcomes: *1) Increased utilization by green industry members of CSU Extension*

research-based best management practice recommendations; 2) increase utilization of PlantTalk Colorado by members of the industry and their customers. 3) Green industry employees will increase collaborative behavior, increase their knowledge on a wide range of topics and pass on information to the gardening public.

Collaboration building indicators: *1) Appearance of partners logos on joint program flyers: 2) formation of a joint program planning group; 3) joint moneys into program and a sharing of program money proceeds; 4) information distributed in partners newsletters; and 5) programs jointly taught.*

Year Two Results

Key Themes - Other: Urban Horticulture, Master Gardeners, Adult Education

Master Gardener Outcomes:

In 2000, 1500 Master Gardener volunteers donated 53,000 hours in service, making 90,000 one-on-one contacts (plus contacts with groups and media).

- A breakdown of outreach efforts (by volunteer hours) includes the following:
  - 44% One-on-one office, phone and field contacts
  - 20% Mass contacts at information booths: clinics at garden centers, garden shows, fairs, etc.
  - 11% Group contacts through classes and workshops
  - 12% Community gardening and greening activities
  - 3% Media: newspapers, TV, radio, and web
  - 10% Program management
- According to e-Power, 1159 horticultural contacts were made. 296 of those resulted in strengthened partnerships, cooperative endeavors and/or collaborative efforts with public and private horiticultural industries and organizations, including 39 non-profit agencies or organizations, 25 for-profit organizations or businesses, 19 public or government agencies, and 4 other organizations.
- Cooperative Extension horticulture staff developed 18 new technology-related training materials for use by green industry professionals.
- Educational materials on horticultural topics were accessed 6716 from a variety of sources. At educational or technical assistance events, 1730 green industry groups or individuals were present.
- Of the 2030 green industry professionals reporting increased knowledge about horticultural issues and related educational topics, 120 cited pest management and control, 67 indicated weed management and control, and 704 said they would adopt research-based best management practices for horticultural decisions.

Linkages: CSU departments of Horticulture and Landscape Architecture and Bioagriculture Science and Pest Management, Colorado State Forest Service; Colorado Department of Agriculture, Denver Botanical Gardens, Denver Water District, Green Industry Executive Committee, Board, and members, Colorado Garden and Home Show, Colorado GreenCo.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Integrated CE/AES work: Ongoing research project (#713) on the selection, introduction and evaluation of landscape materials for the High Plains enables horticulture specialists and agents to make appropriate recommendations to producers. Resources from CE: .2 FTE.
Ongoing research project (#642) on technologies impacting waste water and fertilization needs in greenhouses provides technical recommendations for specialists and agents to share with members of the green industry in Colorado. Resources from CE: .5 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	3	2.5	4	4.5	4.5	1,882,445
County FTE	10	11	12	12	13	4,439,958
Total FTE	13	13.5	16	16.5	17.5	6,322,403
Budget	765,799	591,351	1,304,8l6	1,353,092	1,429,643	

Objective IV.E. Improve the rangeland management skills of Coloradans who manage public and private land.

Projected Outputs: *1) Grazing management class for producers, agency personnel and environmentalists; 2) field days; and 3) educational seminars.*

Projected Outcomes: *1) Colorado producers will implement grazing management plans appropriate for their operations; 2) environmental groups, government wildlife agencies, private land owners, and resource management owners will collaborate to improve grazing management to enhance resource conservation and protection, and wildlife and fishery management; 3) enhanced watershed hydrological functioning and improved quality of water resulting from better vegetation management practices; 4) Colorado producer adoption of integrated sustainable livestock, rangeland, crop land production systems.*

Year Two Results

Key Themes - Natural Resources Management, Drought Management

Of 4,061 agricultural managers participating, 1,920 will improve rangeland management practices to enhance resource conservation and/or wildlife management.

Linkages: CSU departments of Rangeland Ecosystems Science, Fishery and Wildlife Biology and Animal Sciences, Integrated Resource Management Team, Cooperative Extension Southeast Regional staff; Colorado Department of Agriculture, Bureau of Land Management, Natural Resource Conservation Service, USDA Forest Service.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Integrated CE/AES work: An ongoing research project on management of weeds on range and pastureland (#759) provides technology transfer to Extension educators and land managers. Resources from CE: .20 FTE.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1.5	1.5	2	2	3	965,510
County FTE	2	2.5	3	3.5	3.5	1,109,990
Total FTE	3.5	4.0	5	3.5	6.5	2,075,500
Budget	297,929	188,147	422,755	461,031	557,582	

Objective IV.F: Creation of Prairie Dog Management Work Group to develop and implement a program that achieves conservation of the black-tailed prairie dog in Colorado while recognizing that control is necessary and appropriate in areas where prairie dogs conflict with agriculture and other human activities.

Colorado State University Cooperative Extension recently began training small acreage owners in several areas including resolving conflicts with wildlife. Small acreage owners are well educated but generally lack knowledge on how to manage conflicts with wildlife on small acreages. These owners frequently have conflicts with deer, rabbits, voles, prairie dogs, pocket gophers, and several bird species such as flickers.

Wildlife cause economic damage and nuisance conflicts in Colorado. Numerous clientele seek educational information on how to resolve these conflicts. Colorado State University has a network of Master gardeners/Extension volunteers that assist County Extension Agents with answering questions from clientele. We have developed a training program for Extension volunteers that provide educational information on resolving conflicts with wildlife. The training consists of >3 hours of instruction and resource materials which includes a 100 page manual. We also plan to complete an Extension web site on managing conflicts with wildlife by the end of March 2001. The web site will contain numerous resources and links to various web sites related to resolving conflicts with wildlife. Extension volunteers will be able to refer clientele directly to the web site for information instead of photocopying and sending information to them.

Projected Outputs: *Comprehensive work plan with specific tasks to accomplish: inventory and monitoring of existing black-tailed prairie dog populations in Colorado, criteria and procedures for identifying potentially unique or high-quality prairie dog colonies for protection,*

identification of unique prairie dog colonies, identification of incentives for landowners to protect important prairie dog colonies, establishment of a target acreage of occupied prairie dog habitat, and criteria for and identifying unoccupied potential prairie dog habitat in Colorado. Educational information will include 1 hour presentations and Extension bulletins on managing conflicts with about 12 species of wildlife.

Projected Outcomes: *Conservation of adequate populations of black-tailed prairie dogs in Colorado to negate their listing by the U.S. Fish and Wildlife Service as a threatened species. Agricultural producers will have greater flexibility in managing prairie dogs where they cause conflicts if they are not listed as a threatened species. More negotiated solutions to human/wildlife conflicts.*

Year Two Results

Key Theme: Wildlife Management

Prairie Dog Management Work Group Outputs

A fact sheet entitled "Managing prairie dogs," was published this year despite the fact that the specialist leading this group was on sabbatical for six months. The fact sheet contains the following subheadings: biology and social organization, effects on rangeland, economical importance, health risks, black-footed ferrets, effects of extermination, control methods, and regulations.

Linkages: CSU departments of Fishery and Wildlife Biology and Biology; Colorado Farm Bureau, Colorado Cattlemans Association, Colorado Division of Wildlife, Colorado Department of Agriculture, Colorado Department of Public Health and Environment, Colorado State Soil Conservation Board, Colorado State Board of Land Commissioners, USDA/APHIS Wildlife Services, U.S. Bureau of Land Management, U.S. Department of Defense, U.S. Environmental Protection Agency, USDA Farm Services Administration, U.S. Fish and Wildlife Service, and U.S. Forest Service.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Resources Allocated:

	2000-01	2001-02	2002-03	$ Equivalent
State FTE	.2	.2	.3	67,585
County FTE	.3	.8	1.2	176,066
Total FTE	.5	1.0	1.5	243,651
Budget	42,275	44,519	120,826	

GOAL V: Enhanced economic opportunity and quality of life for Americans.

Issue: *For many Coloradans improved quality of life is their most important goal and that potential has attracted many people into the state. Economic opportunities in the tourism industry and the technology related industries also have attracted people. The Extension program challenges, resulting from this rapid and targeted growth, include building community connections and decision-making processes so that change can be planned for. In addition,*

families need to keep a work and relationship balance which nurtures all members of the family in a rapidly changing environment.

Young people have many opportunities for recreation and participation in the fast-paced media related world. Yet, the high employment and rapid change creates real deficits in maintaining community social capital, family cohesion, and effective decision-making structures for controversial challenges. Building the capacity of our Extension system to engage in public policy education, focus leadership in key environmental conflicts, and support investments in youth and families will take a deliberate and comprehensive strategic plan.

Colorado Situation affecting Goal V for Program Year 2001

Human Population

Reaching 4.3 million residents in 2000, Colorado was the third fastest-growing state (30.6 percent) in the U.S. and one of eight states growing by more than 1 million residents since 1990. Population and growth in Colorado are not evenly distributed across the state. Eleven of Colorado's 63 counties had populations greater than 100,000 residents in 1998. These eleven Front Range counties experienced an average growth rate of 28.7 percent from 1990-98. The remaining 52 counties in Colorado had populations of fewer than 45,000 people and their average annual growth rate for the period was 21.8 percent. Colorado's 16 rural counties (population <5,000) had an average growth rate of 14.8 percent (Census, 2000). Proximity to population centers increases the likelihood of land conversion from agriculture to more intensive or non-production oriented uses.

Colorado's 66.6 million acres are approximately 41 percent under federal and state management and 59 percent under private management. Of the privately owned land, approximately 32 million acres is in agriculture. The remainder is either developed or non-agricultural rural land. If land is to be converted to accommodate our increasing population, it will come from agriculture. One estimate indicates that the amount of Colorado land in urban uses is increasing at a rate of 28,000 acres per year (Obermann et al., 2000). A tight supply of private land in desirable living locations, an increasingly urban population, low returns to agricultural production, strong population growth, unequally distributed personal wealth, infrastructural investment and technological innovation and a generally lax regulatory environment with regard to land use all contribute the incentives to convert Colorado's remaining agricultural lands, perhaps irreversibly, to higher intensity uses. A large pool of disposable income to compensate landowners for land stewardship

toward public objectives, federal agricultural policy incentives, a general recession, efforts at local land use planning reform, cultural traditions and outdoor amenity oriented lifestyle choices can act to mitigate and, perhaps, override these incentives. Over the past decade, the net outcome of these forces has generally resulted in more land conversion rather than less. Although those forces remain strong, it appears that there may be sufficient countervailing incentives to slow the rate, if not the total amount, of agricultural land conversion in Colorado in the future.

Ag and Non-ag Income

Colorado is the fifth wealthiest state in the U.S. with an average wage of $31,546 in 1999. Like population growth, the distribution of Colorado's wealth and education is highly unequal. Pitkin County is traditionally among the wealthiest counties in the U.S. ($59,000 aver-age personal income, 1998). The San Luis Valley region of the state has maintained an average income of roughly one-fourth that of Pitkin County for at least a half century ($13,000- 0,000 average personal income, 1998). Front Range in-comes are higher on average than the rest of the state, comprising about 82 percent of total state income and about 75 percent of total population. The number and proportion of Coloradans employed in agriculture is slowly declining. In the agriculturally dependent and grassland dominated Eastern Plains, incomes are lower on average (approximately $22,000 average personal income, 1998) than the rest of the state. Average incomes in the agricultural sector are second lowest (to retail) in the state, indicative of the average returns to agricultural production. The interface between the urban Front Range and the rural Eastern Plains increasingly creates scenarios where the "best and highest use" of agricultural land is in x-urban residential development. In some, formerly rural, markets, average housing prices have out-stripped increases in average personal income by as much as 150 percent in recent years, indicating that commuting urbanites are entering rural land markets, building homes, and bidding up land prices in formerly rural areas. Higher average incomes and greater income differentials across sectors or proximal locations tend to increase the pressure to convert lands. The nationwide recession should decrease conversion pressure, but there is reason to believe that Colorado will be relatively insulated from this down cycle. Moreover, historically low lending rates should mitigate the decrease in conversion pressure as personal investment capital becomes increasingly affordable.

State and Local Policy

In part due to the state's current affluence, Coloradans have invested hundreds of millions of dollars toward land preservation over the past decade. Although it can be expected that the public's taste for discretionary spending might tend to wane in a recession, potentially harming public preservation initiatives, the November 2001 election did not bear this out. In 2001 Coloradans granted the statewide Great Outdoors Colorado Land Trust (GOCO) the bonding authority to leverage its funds in investments or the future. At the local level, more than 25 Colorado counties and municipalities have taxed themselves to preserve public attributes of undeveloped or agricultural lands, often in partnership with land trusts. Through the donation or

purchase of conservation easements or outright purchase, approximately 660,000 acres of Colorado private lands have been permanently preserved from residential or commercial development in cooperation with some 37 local, state, regional and national land trusts (CCLT in State of Colorado, 2000). Compensating landowners for the public benefits that private land steward-ship provides decreases the pressure to convert land from lower to higher intensity uses. State and local regulatory tools can have a similar effect, but may be politically, culturally or legally contentious. Where public incentives or land use controls are not in place to guide private development to pay for itself, opportunities for subsidized land conversion persist.

Hispanics in the Labor Force

The role of Hispanics in Colorado's rural labor force is fairly significant, especially in agriculture and a few other sectors that rely on large supplies of unskilled workers who are willing to accept seasonal employment (tourism, food processing).

With respect to the labor-intensive agricultural sectors that have a high share of labor costs relative to production expenses and employ large numbers of Hispanic workers, greenhouse/nursery enterprises accounted for 4.7 per- cent of agricultural cash receipts, while vegetables and fruits represented 7.1 percent and 0.5 percent of cash receipts, respectively, in 1998. Fruit and vegetable market receipts dropped from 6 percent of agricultural sales in Colorado in 1992 to 3 percent in 1997, while nursery sales increased from a negligible amount to almost 5per-cent of receipts. Between 1992 and 1997, farm production employment was up 22 percent and the agricultural input sector had employment growth of 50 percent while processing/marketing employment levels declined by 14 percent. These combined for a 9.5 percent overall increase in employment in agribusiness sectors between 1992 and 1997. National averages would suggest 75 percent to 80 percent of farm production employment is Hispanic, but the agribusiness sector is more homogeneous and white. However, Hispanics are playing an increasingly important role in the food-processing sector. Labor's share of total agricultural production expenses in Colorado averaged about 5 percent during the 1990's, but has been increasing in recent years. Compensation to hired laborers increased from $198,162,000 in 1993 to $314,935,000 in 1998 (a 59 percent increase and including both full-time and hired workers). The presence of Hispanic or Latino farm operators in Colorado is increasing, with 945 of Colorado's 29,500 farms totaling 631,049 acres in 1997 (401 of which had sales over $10,000). This is up from 853 farms with 604,464 acres in 1992 and represents the largest share of ethnic farm operators. For comparison, 13 percent of the Colorado population is Hispanic.

Colorado Farm Workers

In 1997, 9,394 farms hired 46,072 farm workers and paid $263,603,000 in payroll. The number of farms hiring workers grew (by 257) as did payroll (by $53,928,000), but the number of workers decreased by 350 workers). In 1997, there was an average of almost five workers per farm, but 744 farms hired more than 10 workers and 3,062 farms hired only one worker. The average paid by a farm for each worker was $5721, but that does not control for workers who were employed by more than one farm or off-farm employers. Sixty-seven percent, or 30,840 of the workers,

worked less than 150 days, denoting a large share of seasonal workers, but this number and share are down from 1992 (Census of Agriculture).

According to the Census of Agriculture, the average earnings for a farm worker were $5,722 for work performed in Colorado. However, this varies greatly based on the nature of the work. For farms where workers are only employed for 150 days or more (less than 20 percent of farms), average earnings were $13,209, whereas those farms that hired only seasonal workers (less than 150 days) paid workers an average of $1,501. For farms where both types of workers were employed, average earnings were close to the overall average at $6,560. Producers note that worker recruitment depends on wages and working conditions: Latino immigrants are satisfied with $6 to $7 an hour, while local workers expect $10 an hour. Some growers have upgraded housing for migrants, but none requested help from the local Employment Service to recruit U.S. workers or approve the entry of H-2A workers. In the western U.S., most H-2A farm workers (a special guest worker program for those sectors that can prove a limited supply of workers) are involved in the sheep industry--a total 1,741 job openings in the sheep industry were certified in 1996, including about 450 in California, 300 in Wyoming and Idaho, and 200 in Colorado and Utah. Nationally, it is estimated that 77 percent of farm workers were born in Mexico. The National Agricultural Worker Survey's (NAWS) March 2000 data suggests that 45 percent of the region's farm workers are working illegally in the U.S. and 28 percent are U.S. citizens. Fifty-six percent of U.S. seasonal farm workers are migrant, but Colorado's share of migrant workers in the total farm workforce ranges from 6 percent to 14 percent and it is clear that a larger percentage of the seasonal workforce is migrant.

Rural Economies and Communities

Outside of agriculture, there also is some evidence that Hispanics play a significant role in labor markets. The Los Angeles Times (January 11, 1998) ran several stories on resort cities (Vail, Colorado) that are so expensive that most of the people working there (increasingly Hispanic immigrants) cannot afford to live locally. Jobs are plentiful but workers must either commute or hold several jobs to afford to live in the city. The owners of the Vail and Beaver Creek ski areas, which have a peak winter work force of 4,500 and a trough labor force of 1,200, have gone so far as to build apartments for their workers. Most service workers sleep four or six to an apartment and pay $1,500 or more in rent.

Rural schools in Colorado bear the brunt of large-scale immigrant settlement with the least amount of financial resources to deal with soaring costs (FAIR). A majority of the student population increase in rural areas is comprised of immigrants who speak little or no English. The number of Spanish-only speaking students, drawn to rural areas due to the booming cattle industry, multiplied five times between 1995 and 2000. The schools are unprepared, in terms of Spanish-language materials and the availability of bilingual teachers, to offer English as a second-language instruction. (Source: EFE news service in *Hispanicvista*, May 23, 2000). The significance and growth in Hispanic population varies greatly across counties. It should be noted that a majority of the top counties with respect to share of Hispanics have a heavy reliance on agriculture in terms of employment and/or income. Another set (Lake, Eagle and Chaffee) is likely influenced by the growth in Hispanic employment in the ski resort industry. The 2000 census data on the foreign-born is not due to be released until late 2002; however, a census

supplemental survey estimates the foreign-born population at 368,864. That is 8.8 percent of the state's estimated overall population (4,198,307) and an increase of 159 percent above 1990 levels. Colorado ranked 16th nationally in the rate of foreign-born change between 1960-2000. It is estimated that 55 percent of Colorado's foreign-born population arrived in the state since 1990. Between 1990 and 2000, the share of non-English speakers in Colorado increased by more than one-third, from 10.5 percent to 14.3 percent. Past evidence suggests that agriculture often is the first employer for newly entering Hispanic immigrants.

Future Growth

A strong U.S. economy will continue to provide industrial growth rates in Colorado above the national average. A strong demand for second homes and quality of life aesthetic desires will continue to fuel a construction boom and the establishment of more part-time residents. Colorado is viewed as a desirable retirement location for the tremendous number of baby boomers approaching retirement.

Growth in Colorado needs to be differentiated by region to reflect the diverse growth dynamic at work. The Front Range will see continued industrial growth as well as more retirees. The mountains and West Slope will see second home growth in tourist areas; the warmer parts of this region will see more retirees. The Eastern Plains and San Luis Valley will enjoy some spillover growth from the Front Range as well as increased public sector growth (i.e., prisons). Agriculture will continue to be a strong but struggling presence. Thus growth will be viewed as a positive or negative depending on the region of the state and how well the state deals with growth.
Growth in Colorado is largely determined by economic decisions by private sector industry and decisions by individuals about where to live. These factors are somewhat beyond the ability of the state government to influence. What the state can do and is currently debating is to determine how to manage and direct this growth. If this is not accomplished by the legislature in a satisfactory way, there is a likelihood of the citizen initiative process addressing the issue.

Continued growth in Colorado must be assumed regardless of how the state handles it. Given this reality, Colorado State University and Cooperative Extension must determine what role they can play in an educational context. Obviously some long standing Extension programs (i.e., Youth, Consumer Sciences and Family Living, Horticulture) can expand their programming base in keeping with population increase as resources permit. In addition, they can introduce new subject matter and approaches to address changing demographics and issues. Extension agriculture programs will need to be refocused to address an industry that is being confronted with new environmental laws, changes in traditional land uses, transfers of water out of agriculture, as well as maintain programs to sustain agricultural productivity. Extension Natural Resource programs will have new challenges to address as the urban/wildland interface shifts and expands, there is a proliferation of small-acreage land managers, and commercial land managers seeking alternative revenue sources.

The challenge for Colorado State University and Cooperative Extension on the growth issue is to recognize our strengths and weaknesses as we fashion a role for us in addressing growth decisions in Colorado. Our strengths continue to be 1) our statewide network of Extension educators linked to the resources of the land-grant university; 2) our ability to respond to emerging issues of

statewide importance; 3) our subject matter programs (youth, family and consumer sciences, agriculture, and natural resources) which are appropriate for new Colorado residents. Our weaknesses include: 1) a budget that is not keeping pace with population increases and the specialized needs of new issues growth presents; 2) a lack of capacity and experience in some growth topics-urban planning, land use; and 3) limited capacity for effective facilitation of public policy issues.

New Program Team

The Addressing Growth Decisions Program Team (ADG) (co-chaired by Andy Seidl and Lloyd Walker) has four Action Committees:

Natural Resources, Del Benson, chair
Water, Reagan Waskom, chair
Policy, Andy Seidl, chair
Small Acreage, Bob Hamblen & John Ortmann, co-chairs

This Action Committee structure represents a focus on the agriculture and natural resource component of growth. However, recognizing that growth incorporates other topics, the ADG Program has collaborative links with other program teams also addressing growth (i.e., Work Force/Labor Force, Sustaining Agriculture and the Environment, Engaging Communities in Transition). Links will be established with other teams as needed and appropriate.

As an educational strategy, action committees operate independently based on their subject matter with links and coordination provided by the team co-chairs and team executive committee (co-chairs and action committee chairs). The co-chairs work with other program teams as appropriate. This strategy is to acknowledge the diversity of topics on the growth issue and the related but somewhat eclectic composition of our team. This strategy also reflects our budget limitations. With few resources devoted directly to "growth," our team has to tap existing resources and programs that have a growth element.

Goal V Overview and Outcomes for Program Year 2001

Objective V.A: To integrate the Youth as Assets framework into all youth development programs with an emphasis on developing life-long skills.

Projected Outputs: *1) Newsletter articles clarifying the assets model for 4-H leaders and other youth professionals; 2) development of materials and in-service experiential learning opportunities for 4-H youth faculty, other youth volunteers, and professionals*

Projected Outcomes: *1) 4-H youth leaders and other youth professionals will begin to integrate youth as asset language into their planning and programming activities; 2) youth can name positive assets which create resiliency and encourage positive contributing behaviors; 3) youth take more responsible leadership positions within their own organizations; 4) youth initiate plans for community service and identify leadership opportunities for themselves and others in their community.*

Year Two Results

Service learning projects help participants gain skill and experience through active participation in organized service experiences that meet actual community needs.

- Of the 9,648 participants in service learning projects, 7,854 helped identify opportunities to meet actual community needs.
- Participants interacted with interested adults to implement a project in 5,575 instances. When asked if their experience made a difference in one's own life or the lives of others, 1672 out of 2726 total participants said yes.
- Participants made use of personal talents and skills in 2256 of 2728 cases.
- Youth voluntarily identified a mutual goal, and shared responsibility for accomplishing the goal in 3127 of 3835 cases.
- When participating in a project, 8674 of 9016 participants shared accomplishment and achievements with others.
- Participants developed thinking and managing skills like problem solving, including identifying a problem and developing a plan of action to resolve it. In problem solving situations, 13079 of 13473 were able to carry out a plan of action to resolve a problem. In decision making situations,
- 16209 of 17058 participants were able to compare and choose among several alternatives due ot increased decision-making skills.
- Participants in critical thinking exercises were able to observe and examine reactions of others in 22,930 out of 22,948 cases.
- In events to exercise goal-setting and planning and organizing skills, 4040 of 4660 participants identified a goal to work toward, and recorded and shared achievements towards that goal. The ability to plan and conduct an event/activity were reported or documented for 5531 out of 6979 participants.

Objective V.B. To enhance the quality of the contributions made to Colorado

Cooperative Extension by a well-educated, effective volunteer network.

Volunteers play a dynamic and integral role in delivering Cooperative Extension programs through participation in 4-H, Master Gardeners, Rural Assistance, Expanded Food Nutrition Education Program, Food Nutrition Program, county or program advisory committees, commodity groups and many other positions. The role of volunteer development in Cooperative Extension programs is to build organizational capacity through the most cost-effective way of reaching more people, more quickly, with relevant information. The organization could improve the impact of volunteers in program planning, delivery and evaluation through a systematic, organizational approach to addressing this vital function through enhancements to staff development, policy development, and program management.

***Projected outputs**: 1) Improved efforts at volunteer identification, selection, orientation, training, utilization, recognition, evaluation and retention; 2) Improved through planned extension educational orientation, preparation, training, and assistance activities; 3) Volunteers will become more involved in neighborhoods, community partnerships and community affairs, and will develop skills to enable effective partnerships and collaborations; 4) Volunteers will assist CE personnel in meeting their goals through facilitation and leadership efforts, and use of personal influence and collaboration skills to add value to CE programs.*

***Projected Outcomes:** **1)** Reduced volunteer turnover; 2) Increased volunteer tenure; 3) Improved program delivery; 4) Volunteers have the skills for the position they are seeking; 5) Improved understanding of the potential volunteers' attitudes and motivations for involvement; 6) Improved communications between staff and volunteers; 7) Improved assessment of the training needs for volunteers; 8) Improved match between volunteers and CE programs; 9) Decrease volunteer dropout rate; 10) Increase volunteer satisfaction in accomplishing program goals; 11) Clarification of the roles and responsibilities between volunteers and CE; 12) Rights of volunteers protected; 13) Rights of CE protected.*

Year Two Results

Key Themes - Character/Ethics Education, Youth Development/4-H

Volunteer Development

- Extension personnel will design opportunities and creative roles for volunteers. *Number of volunteer opportunities and creative roles designed: 874*
- Extension personnel will recruit new volunteers for these opportunities and roles. *Number of new volunteers recruited: 592*
- Extension personnel will match roles/positions with volunteer abilities/skills. *Number of volunteer roles/positions matched with volunteer abilities/skills: 469*
- Extension personnel will report an increase in retention of volunteers. *Number of volunteers retained/total number of volunteers: 1,877*
- Volunteers will increase their problem-solving skills and enhance their ability to solve problems. *Number of volunteers who increased their problem-solving skills and/or enhanced their ability to solve problem/total number of volunteers trained in problem solving: 2,974.*
- Volunteers will show evidence of accepting differences in people and their opinions, will

tolerate disagreements, will demonstrate conflict negotiation skills, and will manage conflict positively. *Number of volunteers who showed evidence of accepting differences in people and their opinions, who tolerated disagreements, who demonstrated conflict negotiation skills, and who managed conflict positively/total number of volunteers trained in conflict resolution and management: 674*

- Volunteers will increase their knowledge and/or skills related to leadership. *Number of volunteers who increased knowledge and/or skills related to leadership/total number of volunteers trained in leadership skills: 1,949*
- Volunteers will report they learned skills that contributed to enhancement of their career or life's work. *Number of volunteers who reported they learned skills that contributed to enhancement of their career or life's work/total number of volunteers trained: 7*
- Volunteers will report improved quality of their volunteer educational experience. *Number of volunteers who reported improved quality of their volunteer educational experience/total number of volunteers: 591*
- Volunteers will report they were engaged in meaningful volunteer activities/roles, and report increased volunteer satisfaction. *Number of volunteers who reported they were engaged in meaningful volunteer activities/roles, and reported increased volunteer satisfaction/total number of volunteers: 345*
- Volunteers will increase their knowledge about building teams, partnerships and collaborations. *Number of volunteers who increased their knowledge about building teams, partnerships and collaborations/total number of volunteers trained in team-building and collaboration: 418*
- Volunteers will report they became involved and made use of personal talents and skills to enhance or strengthen neighborhoods or communities, or to solve neighborhood or community problems. *Number of volunteers who reported they became involved and made use of personal talents and skills to enhance or strengthen neighborhoods or communities, or to solve neighborhood or community problems: 785*
- Volunteers will report that their efforts made a difference in their own life or the lives of others. *Number of volunteers who reported that their efforts made a difference in their own life or the lives of others: 1,024*
- Community partnerships will expand due to Extension-trained volunteer efforts. N*umber of community partnerships created/expanded due to Extension-trained volunteer efforts: 5*
- Volunteers/leaders will generate resources for Extension programs, including donated time, money, and/or human capital. *Number of volunteers/leaders who generated resources for Extension programs, including donated time, money, and/or human capital: 1,979*
- Volunteers/leaders will demonstrate outstanding "multiplier effects" for Extension programs. *Number of volunteers/leaders who demonstrated outstanding "multiplier effects" for Extension Programs: 346*
- Volunteers/leaders will demonstrate outstanding personal leadership skills and provide commendable leadership to Extension programs. *Number of volunteers/leaders who demonstrated outstanding personal leadership skills and provided commendable leadership to Extension programs: 734*

Linkages: 4-H Youth Development, CSU departments of Human Development and Family Studies, Social Work and School of Education; CSU Family-Youth Institute; Colorado Trust, Colorado State Department of Education, and Assets for Colorado Youth, Search Institute

(Minnesota).

Source of Funds: Extramural and Smith Lever

Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	.5*	.5*	1	2	2	482,755
County FTE	2	3	3	4	4	1,224,816
Total FTE	2.5	3.5	4	6	6	1,707,571
Budget	153,102	152,942	326,204	499,306	499,306	

** Extramural funding*

Objective V.C: Enhance the ability of Colorado parents to control their own anger and react with appropriate guidance to their young persons.

Ninety-seven percent of all male hard-core delinquents have a history of severe physical punishment in the home (Colorado Department of Corrections, 1995). The amount of physical punishment experienced as a child is positively associated with the rate of abusive violence against one's own children. Child abuse has become a national and state problem of epidemic proportions. Nationally, more than 2.9 million reports are made annually. (References are available upon request from Robert J. Fetsch, Department of Human Development & Family Studies, Colorado State University, Fort Collins, CO 80523-1570.) In Colorado, there were 50,940 reports of child abuse and/or neglect in 1997 (K. C. Robbie, personal communication, August 5, 1998 via Central Registry for Child Protection and County Quarterly Surveys CPS Summary 97). This is up from more than 34,000 reports in 1992. Counties most at risk of high child abuse and/or neglect per capita rates in 1997 were: Morgan, Washington, Lake, Bent, Saguache, Logan, LaPlata, Mesa, Adams, Otero, Sedgwick, Grand, Clear Creek, Denver, and Montezuma.

Preventing child abuse is second only to rising health care costs on the list of priorities of the people of Colorado. We know from the research literature that parents who abuse their children have been found to be less knowledgeable about parenting and child development, to have unrealistic expectations of their children, and to use discipline techniques that are inappropriate for their children's level of development. When parents do not know how to react to a child's behavior or when they react primarily in anger, they are at greater risk of abusive behavior. We also know there has been limited research on child abuse prevention programs.

Projected Outputs: *1) Trainer of trainers program for RETHINK; 2) ongoing research updates and reviews for county faculty; 3) adaptation of RETHINK for specialized targeted audiences.*

Projected Outcomes: *1) Parents and youth will report reduction in anger levels and expression of physical or psychological violence; 2) increase in parent use of appropriate developmental guidance techniques; 3) pro-active community requests for anger management for adolescents and parents.*

Year Two Results

Key Themes - Conflict Management, Parenting, Communications Skills

ReThink Anger Management Program Outcomes:

- Families and individuals will gain skills and improve behaviors related to nurturing and caring for self and/or children. *Number of families, individuals who improved behaviors related to nurturing and caring for self and/or children 1109 of 1993 participants.*
- Families or individuals will improve attitudes related to nurturing and caring for self and/or children. *Number of families, individuals who improved attitudes related to nurturing and caring for self 4391 of 1355 participants.*
- Families or individuals will increase their knowledge of parenting skills. *Number of families, individuals who increased knowledge of parenting skills, 10969 of 12206 participants.*
- Families or individuals will increase their knowledge of child growth and development. *Number of families, individuals who increased knowledge of child growth and development 12095 of 13350 participants.*
- Families or individuals plan to make positive behavior changes in nurturing children *1133 of 1488 participants.*
- Families or individuals gained more realistic expectations of children. *1472 of 1742 participants.*
- Families and individuals improved skills and behaviors in communicating, resolving conflicts, and making effective decisions. *Families or individuals will use better communication skills. 932 of 1491 participants. Families or individuals will improve conflict resolution skills. 569 of 1100 participants. Families or individuals will increase anger management skills 107 of 217 participants. Families or individuals will reduce anger levels. 104 of 190 participants.*

Linkages: CSU departments of Human Development and Family Studies, Sociology, Social Work and Health and Exercise Science; CSU Family and Youth Institute, CSU Service Learning Program, 4-H Youth Development, CSU School of Education; Colorado Attorney General's office, Colorado Governor's office, Colorado Department of Education, Colorado Department of Social Services, Colorado Community Policing Institute, Colorado Department of Public Health--Division of Intervention and Prevention for Children and Youth, Build A Generation Program-Office of Juvenile Justice Programs, Colorado Community Restorative Justice Forum-Colorado Department of Justice; Alcohol and Drug Abuse Division-Department of Human Services, Rocky Mountain Center for Health Promotion and Education-Prevention Project.

Source of Federal Funds: Smith-Lever

Scope of Impact: Multi-State with Arizona, California, Colorado, Illinois, Indiana, Kansas, Michigan, Missouri, Montana, North Dakota, Nebraska, Nevada, Ohio, South Dakota, Utah, Washington, and Wyoming.

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent

State FTE	1	1.5	1.5	2	2	772,408
County FTE	3	4	4	5	5	1,607,571
Total FTE	4	5.5	5.5	7	7	2,379,979
Budget	326,204	250,611	451,031	575,858	575,858	

Objective V.D: Enhance the ability of Colorado communities and citizens to prevent youth violence.

At the beginning of 1990's some predicted a plague of violence caused by juveniles, the Nation now faces quite a different picture. As reported in the 1999 National Report on Juvenile Offenders and Victims, the nation experienced its fifth consecutive year of a drop in the rate of juvenile arrest for violent offenses and the rate for youth victimization has followed the same trend. Although the level of youth violence has declined, other statistics from the Bureau of Justice Statistics indicates the continuing seriousness of this issue:

- Young people (between the ages of 12 -24) make up less than a quarter of the U.S. population of 12 and older but experience nearly half of all serious violent crimes.
- U.S. youth homicide rates far exceed those experienced by other industrialized nations.
- Negative social indicators impacting crime also remain high.
- Graduation rates for young adults has remained relatively stable (86%), however, high school completion levels were consistently lower for Hispanics (between 1972 and 1996 fluctuated between 56% and 67%).
- The prevalence of heavy drinking among adolescents has remained constant.
- Drug use among 12th graders had declined in the 1980's, since 1992, illicit drug use has increased among this age group.
- With a few exceptions urban and rural youth reported participation in problem behaviors in equal proportion.
- Research finding from OJJDP and the National Institute of Justice suggest that youth gangs continue to present a serious threat to public safety, despite the recent downturn in juvenile crime.
- Gang problems now affect more jurisdictions than before - including rural and suburban areas.
- Gang demographics are changing as gang emerge in new areas. White participation in gangs in on the rise. The proportion of female gang members, while small, may be increasing.
- Youth who are involved in youth gangs commit three to seven times as many delinquent and criminal offenses as youth who are not gang involved.
- Youth involved in gangs often have long term mental heath needs requiring long term comprehensive, and collaborative services in the community.

The nature and characteristic of crime and violence affecting communities continues to change. It is difficult to separate the myth from the reality due to media coverage of recent acts of violence

that have occurred in schools/communities across the nation. Colorado communities, whether urban, suburban or rural, are facing these same serious issues.

Colorado communities also face changing demographics adding to the complexity of addressing crime. Some communities are experiencing increases in population, while others struggle to revitalize their communities and keep people from leaving. Several communities have seen increases in immigrants, ethnic groups, and minorities. While all this adds to the diverse nature of communities, it also often results in citizens with varied interests, values and concerns. Individuals and groups isolate themselves to pursue their goals, sometimes in conflict with others or the public good. Communities need assistance in coming together to build consensus around serious public safety issues, to develop strategic plans, and build a stronger communities in which crime and disorder will not thrive.

This changing environment has caused law enforcement to seek more effective methods and work together with others in community to develop more strategic and comprehensive approaches to today's challenges of finding solutions to issues such as drug dependency, mental health care, and an every growing population of prison residents. It has not been a traditional role of law enforcement to engage community in resolving these issue, so they also have turned to others that have experience and success in community involvement.

Current research cannot yet say with certainty what combination of programs and social factors lead to decline in crime rates. However, current explanations point to community policing, gun violence prevention programs, gang interventions, school safety efforts, improvement in the economy providing hope for succeeding in a legitimate economy, increased incarceration of potentially violent offenders, and prevention programs, such as mentoring as effective factors in reducing violent crime. The explanations certainly are not mutually exclusive, and different explanation could apply to different communities. Results from a recent study using the Chicago Youth Development Study point clearly to the importance of the interaction between family functioning and community characteristics contribution to delinquency prevention. Results indicate that socially organized neighborhoods can mediate the detrimental effects of poor family functioning, while neighborhoods that are the most socially organized can further boost the effect of strong families. Still more research is needed to sort out these and other possible contributors.

Projected Outputs: *1) Development of a resource database to provide youth and family professionals with materials for teaching specific violence prevention skills; 2) clearly communicated administrative support for the importance of the key strategies to prevent violence in young people and in communities; 3) skill development training for Extension professionals and youth and family professionals in other organizations on topics such as "Recognizing Vulnerable Youth," "Defusing Anger," "Responsive Communication Techniques,"and "Mentoring and Supporting Young People;" 4) training for communities in the "Community Problem Solving Model" through Partnerships in Community Safety.*

Outcomes: *1) Increased active use of violence prevention curricula and experiential learning among 4-H volunteers and youth professionals in Colorado; 2) development of active problem-solving committees led by youth in selected Colorado schools; 3) enhanced adult/youth*

collaborative learning projects; 4) increased recognition of Cooperative Extension as a violence prevention/youth as assets resource for other organizations; and 5) increased number of active Extension Partnerships for Community Safety.

Year Two Results

Key Themes - Conflict Management, Other: Violence Prevention

To assist law enforcement and communities across Colorado in addressing the public safety issues affecting them, a partnership was established between Colorado State University Cooperative Extension (CSUCE), the Colorado Regional Community Policing (CRCPI), and the Neighborhood Resource Center (NRC). CRCPI was created by the Colorado Department of Public Safety, Division of Criminal Justice, in 1997. It is funded by the U.S. Department of Justice, Office of Community Oriented Policing Services, to create a method or process that would assist communities and law enforcement agencies in the implementation of community policing. CRCPI has been successful in providing training, technical assistance, statewide conferences/seminars, publications, and resource materials to law enforcement agencies. To enhance community involvement, CRCPI partnered with NRC to mobilize neighborhoods in the six-county area around Denver. Following the first year of implementation, CRCPI recognized the need to engage rural communities beyond the metro area in applying the principles of community policing. Colorado State University's (CSU) outreach capacity through Cooperative Extension (CE) was recognized by the CRCPI Governing Board. In November of 1998, CSUCE joined this state partnership to begin building new local partnerships that include representatives from law enforcement, schools, youth, non-profits, business, local government, emergency teams, faith community, senior citizens, civic organizations, mental health, public health, social services, hospitals, criminal justice, and other organizations. CSUCE provides community training, support and technical assistance, and a link to University departments and other sources for research of best practices in building community partnerships and addressing specific public safety issues.

Outcomes and Indicators:

- Personal safety. Participants will take care to avoid danger, risk or harm; practice self-protection; stay physically and emotionally safe. Participants will avoid situations that might put one at risk – weapons, walking alone at night, unsafe food practices, etc. *Number of participants who avoided situations that might put one at risk 945 of 1770 participants*
- Participants will practice safe driving and farm safety skills, avoid riding with unsafe drivers. Number of participants who practiced safe driving and farm safety skills, and avoided riding with unsafe drivers 872 of 2194 total participants. *Number of participants who practiced refusal skills 489 of 1277*
- Heart – Relating and Caring. Cooperation: Participants will work together for a common purpose of mutual benefit. Participants will illustrate trusting relationships through cooperative efforts. *Number of participants who showed respect and consideration for others 27538 of 28043 participants.*
- Social Skills Participants will behave in an acceptable manner when interacting with others. Participants will show respect and consideration for others. N*umber of participants who behaved in acceptable manner 27538 of 28043 participants.*

- Participants will be able to resist negative peer pressure and dangerous situations. *Participants who were able to resist negative peer pressure 1690 of 2518 participants.*
- Conflict resolution: Participants will apply creative and nondestructive ways to resolved differences with others. Participants will clearly state needs and feelings of others. *Number of participants who applied creative and nondestructive ways to resolve differences with others 803 of 1326 participants.*
- Participants will illustrate conflict negotiation skills in confrontational situations. *Number of participants who illustrated conflict negotiation skills in confrontational situations 1123 of 1476 participants.*
- Accepting differences Participants will recognize and appreciate factors that separate or distinguish one person from another. Participants will value the contributions of a variety of people and treat them with dignity, respect and worth. *Number of participants who value the contributions of a variety of people and treat them with respect 28388 of 29549 participants*.
- Empathy: Participants will be sensitive to another person's situation, feelings, or motives. Participants will identify with and understand another's situation, feelings, and motives. *Number who show empathy to others 986 of 1256.*

Linkages: Specialists and faculty in CSU Department of Human Development and Family Studies, county Extension faculty; Colorado Department of Social Services and Colorado Department of Education.

Source of Federal Funds: U.S. Department of Justice, Smith Lever

Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1	2	2	3	3	1,062,061
County FTE	2	3	4	4	5	1,377,918
Total FTE	3	5	6	7	8	2,439,979
Budget	249,653	236,981	499,306	595,857	672,408	

**Community Policing programming is funded through a grant from the U.S. Department of Justice.*

Objective V.D. Enhance the quality of youth and family serving programs in Colorado and create more supportive policies in areas affecting youth and families.

The Family and Youth Institute is in a unique position to develop and maintain a two-way exchange between the University and community. Across the State of Colorado, many individuals, agencies, organizations, and communities struggle with the issues facing youth, families, and aging populations in our complex and ever-changing society. FYI strives to be the coordinating agency for information dissemination in the family, youth, and aging areas. To

successfully coordinate the two-way exchange between CSU and the citizens of Colorado, some specific goals must first be accomplished:

- Profile faculty and develop a faculty database for those on and off campus who are teaching, doing research, working with programs, and interested in family, youth, and aging issues.
- Identify and develop a database of indicators/problems, areas where research is needed in the family, youth, and aging areas.
- Identify programs in the State in family, youth, and aging that have been evaluated, determine the "best-practices" in the different areas, and provide this list on the website.
- Develop a mechanism or model to publicize ongoing research-based information through collaborations, committees, and program development.
- Develop a mechanism or model to translate University interdisciplinary knowledge into real-world interventions.
- Identify and attempt to resolve the barriers to University information and service
- Develop or host training programs for family, youth, and aging organization employees, employers, social service professionals and public officials.
- Provide a strong advocacy for families, youth, and the elderly in policy when necessary.
- Provide research and consultation to executive, legislative, judicial, for-profit, and non-profit agencies on policies that may affect families, youth, and aging populations.

Projected Outputs: *Continued development of the Family and Youth Institute to provide policy education, research collaboration, youth and family professional education, and social and economic analysis of trends affecting Colorado's family and youth.*

Projected Outcomes: *1) New interdisciplinary collaborations on the Colorado State University campus in research and programming affecting families and youth; 2) increased understanding of socio-economic trends and cross-ethic and assimilation challenges affecting youth and families and strategic planning initiated by communities and organizations which reflect these trends; 3) enhanced skills in developing, implementing, and evaluating appropriate programs for Colorado's families and youth; 4) increase in external funding to increase institutional capacity for research, policy education and professional development.*

Year Two Results

Key Themes - Children, Youth & Families At Risk, Parenting Youth Development/4-H

Outcomes:

- Databases of CSU faculty in family and youth research is developed and online.
- Best Practices Section of website is being developed (see www.cahs.colostate.edu)
- Family and Youth Institute has assumed management of the Gerontology Emphasis Undergraduate Program.

Linkages: CSU College of Applied Human Sciences, College of Agriculture, College of Liberal Arts, Colorado Agricultural Experiment Station, county Extension faculty; Colorado Department of Education, Colorado State Department of Social Services, Colorado Governor's Office, Colorado County Commissioners, Colorado State Legislature, multiple agency and organizational

leaders.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific

Resources Allocated:

	1999-00	2000-01	2001-02	2002-03	2003-04	$ Equivalent
State FTE	1	2	3	3	5	1,351,714
County FTE	1	2	2	3	3	852,061
Total FTE	2	5	6	8	9	2,193,775
Budget	249,653	346,204	442,755	519,306	615,857	

Objective V.F: Increase rural economic diversification with special emphasis on existing business retention/expansion, small and home-based business emphasizing value-added agriculture, eco-tourism, forestry, and appropriate technologies and business/community mutual support.

The nature of many local challenges requires whole communities, regions, and the professionals who serve them, to engage in joint work. Some of these challenges are the interrelated topics of locally appropriate economic diversification, land-use decision-making and capacity building for teamwork, community spirit and cohesion--and small communities and non-metropolitan areas have special needs for support.

Coping with change and diversity is a continuing test of our collective energy. Colorado has experienced many population booms and busts, especially since the days of gold rushes, the advent of frontier railway service and statehood. Since then, as with Native Americans before them, waves of domestic and international migrants have been coming, with some staying and others leaving, according to their preferences for life-quality and lifestyle. With all these changes, the state's natural, agricultural, cultural and other resources have been capitalized upon according to fluctuations in local-to-global markets. The last ten years have been no exception.

Historically, the Colorado economy has relied on its vast forest and mining resources and its agriculture for raw products; its water to support life and development; its physical, cultural and social amenities to attract visitors and new residents; and the independent, entrepreneurial Western frontier spirit of its people. These combined legacies are helping to shape the future of Colorado, and they offer both challenges and opportunities for rural and urban development. The challenges facing small communities and non-metropolitan regions of Colorado are of special concern because often they have relatively limited public revenues on which to rely, and few professional staff to assist them. The challenges facing small communities and non-metropolitan regions in Colorado differ between areas.

A few areas continue to lose population due to a limited economic base, while others are gaining population more rapidly than they can integrate newcomers or supply infrastructure. Some communities continue to seek sustenance from family farms, production and value-added agriculture. A few depend on forestry or mining. Others rely on surrounding tourist attractions of mountains, forests, lakes, wildlife and historical sites. Some look to the payrolls of government installations; rely on incomes of resident-commuters who travel to metropolitan areas for work; look to prospects of commercial ventures like recreational facilities and casinos, private prisons, manufacturing plants, animal feeding operations, and other businesses. A growing number of communities are seeking new residents who bring retirement pensions or other sources of outside income (with some of the latter facilitated by telecommuting). Few can any longer rely on a single economic base.

Some small and rural communities struggle to survive as their traditional economic base changes. Native sons and daughters migrate to cities in search of higher-paying jobs and what they perceive are better lifestyles. In certain resort areas, families are forced to leave or commute due to high costs, lack of appropriate housing or career opportunity. The scale of agricultural enterprise now ranges from large commercial operations to small acreages with non-traditional operators. Changing land-use patterns, sharply escalating prices and accompanying management challenges abound. Interest in value-added enterprise is on the rise. Economic growth or decline is often accompanied by related challenges to an area's social well-being and stewardship of its natural, agricultural, cultural and open space resources.

Most Colorado communities in transition must be concerned with income-production for citizens and likewise public revenues, social well-being and natural resource integrity. To survive and prosper, they must attract young and old and nurture present residents and newcomers. They need vital services and physical infrastructure. They must anticipate and address changing circumstances so they are healthy well into the future. To do this they need widespread, informed citizen dialogue and action that acknowledges local-global and rural-urban interdependencies and that capitalizes on local resources, creativity, caring and the occasional support of concerned outsiders. They must foster caring and spirited social interaction and sound diverse economies while maintaining a quality life and environment. Achieving this balance is a challenge for communities. Many Colorado communities are in transition.

Projected Outputs: *1) Training for community teams in economic diversification models, 2) electronic communication to share new opportunities for economic development and funding, 3) workshops and web sites providing guidelines for eco-tourism and fisheries and wildlife economic opportunities.*

Projected Outcomes: *1) Jobs created by enhanced business expansion or new businesses; 2) improved business planning for realistic business success; 3) improved business/community collaborative work for long-range economic development.*

Year Two Results

Key Themes - Community Development, Impact of Change on Rural Communities, Jobs/Employment, Other: Business Retention/Expansion

New Action Committee:

The new Expanding Opportunities for Colorado's Employers and Workforce plan of work focuses on providing information, analysis and education to enhance effective labor management and personal professional development. The primary goals are to better inform and advise employers as to how to effectively manage their workforce in current regulatory and market conditions and to educate those preparing to enter or reposition themselves in the workforce. As a complement, the plan of work will include efforts to build connections with those agencies and

institutions that support similar audiences. These goals are based on several assumptions:

- There is a mismatch between the training and abilities of workers and skills in demand among employers.
- There is a complex set of regulations and laws governing employer/employee interactions.
- There are unequal employment opportunities and labor force conditions across regions, with arguably greater challenges in rural areas.
- There are concerns about the affordability of living given prevailing wages in several areas of Colorado.
- The workforce is increasingly diverse in terms of gender, age, ethnicity, family situation and educational background.

Economic Diversification, Community/Business Support Outcomes

With support of Cooperative Extension and other agency partners, interested communities and regions will identify and weigh collaborative, home-grown economic diversification options and strategies with potential to enhance private income production and local revenues while maintaining and strengthening natural resources and social well-being.

Community-regional groups will identify and weigh collaborative economic diversification options and/or strategies to enhance private income production and public revenues while maintaining or strengthening natural resources and social well-being.

- For the year 2001, the total number of community-regional groups that identified and weighted economic diversification options was 50.
- Of the 50, the groups that considered collaborative economic diversification options/strategies included 28 representative of town/city; 40 representatives of several neighboring towns or a full county; 32 represented a multi-county area.
- Twenty-six of those participating considered complementing and building on local-regional strengths as they identified and weighed economic diversification options and/or strategies; 27 considered cultivating business-community mutual support (which benefited businesses and the community) as they identified and weighted economic diversification options and/or strategies; 27 considered encouraging existing business retention-expansion as they identified and weighed economic diversification options and/or strategies; and 34 considered fostering home-grown and home-based small business development (which capitalized on value-added agriculture or forestry and appropriate technology) as they identified and weighed economic diversification options and/or strategies.
- Cooperative Extension and other agency partners, supported interested communities and regions in their efforts to incorporate the most promising and feasible strategies into local-regional economic diversification partnership plans, and work to implement the plans over time.
- Community-regional groups translated economic diversification options and/or strategies (previously identified and weighed) into an action plan in 15 instances. Of those action plans, 7encompassed a single town/city; 19 encompassed a single town/city & nearby farms/ranches/small acreages; and 14 encompassed a multi-county area.

- Twelve community-regional groups implemented part or all of their economic diversification action plan, including 9 single town/city groups; 9 groups that represented a single town/city and nearby farms/ranches/small acreages; 6 groups that represented several neighboring towns or a full county; and 4 multi-county area groups.

Linkages: Center for Rural Assistance; Engaging Communities in Transition On-Going Program state team with its county/regional/campus-based membership; CSU-CE county staff--especially in Custer, Dolores, Logan, Morgan, Routt, Sedgwick, Summit, Weld counties and specialists in NW and NE regions; Sustaining Agriculture and Environment On-Going Program state team; CSU departments of Agricultural and Resource Economics, Design and Merchandising, Fishery and Wildlife Biology and Human Development and Family Studies; 4-H Citizen Washington Focus; Colorado Rural Development Council; USDA/CSREES/Land-Grant University Communities in Economic Transition Pilot Project; Colorado Department of Agriculture; Colorado State Forest Service; USDA-NRCS and RC&D's; USDA-FSA; US Forest Service; Colorado Small Business Development Centers; Colorado Rural Technology Academy; Colorado Department of Local Affairs; Colorado Open Space; Colorado's "Bean-Pole" Technology Grants Fund; Sedgwick County Technology Board; Montana State University Extension; University of Minnesota Extension; Western Rural Development Center; University of Wyoming Extension and WY Rural Development Council; local economic development organizations; Colorado's Region 9 Economic Development; Colorado Community College system; local public libraries; local Internet Service Providers; American Farmland Trust; Rocky Mountain Elk Foundation; Lucent Technology/EduQuest; the Rural Wide Web; local business leaders.

Source of Federal Funds: Smith-Lever

Scope of Impact: State Specific and Multi-State with Montana, Minnesota and Wyoming

Resources Allocated:

	19 99-00	200 0-01	200 1-02	200 2-03	20 03-04	$ Equivalent
State FTE	**1.5**	1.5	2	2.5	3	965,510
County FTE	**3**	2	3	4	5	1,224,912
Total FTE	**4.5**	3.5	5	6.5	8	2,190,422
Budget	249,653	167,325	422,755	547,582	672,408	

Stakeholder Input Process

Annual critiques and input on our Plans of Work are provided from our State Extension Advisory Committee and from County Advisory Committees. This is an ongoing process whereby critiques and requests are funneled through county faculty to regional directors and discussed at regional meetings on an annual basis.

In addition, we have instituted annual stakeholders' meetings in at least two separate regions of the state. In 2001, the campus-led development of a Strategic Plan for Agriculture provided approximately 200 community leaders to attend one of five regional meetings.

Out of the regional meetings, key issues for Colorado were organized into four Critical Issue Teams:

Addressing Growth Decisions
Empowering Family and Youth Voices
Understanding Biotechnology
Expanding Opportunities for Colorado's Workforce

Program Review

The program review process has not changed since the submission in 1999. We are currently talking with the Ag Experiment Station regarding some joint program review processes based on our joint development of a program accountability system.

Evaluation of the Success of Multi & Joint Activities

Multistate Projects - As shown in the attached table, Colorado State University Extension faculty are engaged in a great variety of multistate activities largely focused on the immediate high plains states or in the western region. The activities can be organized around our ongoing Program of Work Teams and provide additional resources and synergy in high quality programming and research.