Plan of Work

October 1, 1980 – September 30, 1981

north carolina

AGRICULTURAL EXTENSION SERVICE

a&t and n.c. state universities

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BY PROGRAM AREAS AND PROGRAM COMPONENTS 1/
1862 INSTITUTIONS
FY 81

STATE North Carolina

PROGRAM COMPONENTS (See definitions in Section III)	PROGRAM AREAS 2/									
	ANR		CRD		HE		4-H		TOTAL	
	81 No.	86	81 No.	86	81 No.	86	81 No.	86	81 No.	86
1. Crop production	172.4	181.2					1.4	1.5	173.8	182.7
2. Livestock production	130.5	133.0					2.0	2.1	132.5	135.1
3. Bus. mgt. & economics	27.1	29.3							27.1	29.3
4. Agr. mkg. & farm supplies	8.3	9.3							8.3	9.3
5. Natural resources	14.9	16.7	4.4	4.9			.9	1.0	20.2	22.6
6. Mech. sc., tech. & engnr.	10.8	12.1							10.8	12.1
7. Safety	1.0	1.2	1.3	1.4	.5	.5	1.3	1.3	4.1	4.4
8. EFNEP-Fed. funded 3/	1.0	1.2			27.5	29.2	3.3	3.4	31.8	33.8
EFNEP-Non-fed. funded										
9. Food and nutrition					46.0	48.8	.8	.8	46.8	49.6
10. Pers. & fmly. res. mgt.					29.3	31.0			29.3	31.0
11. Family life, etc					37.3	39.4			37.3	39.4
12. Textiles and clothing					32.0	33.7	2.0	2.1	34.0	35.8
13. Human health							2.2	2.3	2.2	2.3
14. Housing & home environment			5.9	6.6	53.0	56.2	.2	.2	59.1	63.0
15. Leadership development			24.3	27.2	19.3	20.4	79.8	82.2	123.4	129.8
16. Org. devel. & maintenance			6.0	6.7	5.1	5.8	59.9	61.8	71.0	74.3
17. Comp. comm. planning			3.5	3.8					3.5	3.8
18. Comm. ser. & facilities			4.6	5.1					4.6	5.1
19. Ec., dev., mpwr. & careers			3.0	3.3					3.0	3.3
20. Govt. oper. & finance										
21. Leisure & cult. education							2.2	2.3	2.2	2.3
TOTAL BY PROGRAM AREA	366.0	384.0	53.0	59.0	250.0	265.0	156.0	161.0	825.0	869.0
GRAND TOTAL										

1/Staff year allocations account for total available FTE's. Calculate to one decimal place. Staff resources allocated to administration, management, staff development, etc., are to be allocated to relevant program components and program areas. This table should account for all staff years available in 1862 institutions.

2/Include planned allocations for 1981 and an estimation of allocations for 1986. 1986 allocations should be based on the long range plans developed within the State.

3/Staff time allocated to EFNEP should be consistent with the EFNEP budget guidelines.

TABLE III. PLANNED ALLOCATION OF PARAPROFESSIONAL STAFF YEARS BY PROGRAM AREA 1/
1862 INSTITUTIONS

FY 81 STATE North Carolina

PROGRAM AREA		PARAPROFESSIONAL STAFF 2/	
		1862	
		Number in 1981	Number in 1986
ANR			17.0
CRD			
HE	EFNEP--Federally funded	135.9	150.0
	EFNEP--Non-federally funded		
	OTHER		
4-H	EFNEP-Federally funded	19.1	43.0
	EFNEP--Non-federally funded		
	Other	48.0	60.0
TOTAL		203.0	270.0

1/Staff year allocations are to account for total available FTE's. Calculations should be carried to one decimal place. Staff resources allocated to administration, management, staff development, etc., are to be allocated to relevant program areas. This table should account for all available staff years.

2/Include planned allocations for 1981 and an estimation of 1986 allocations based on the long range plans developed within the State.

PLANNED ADMINISTRATION OF CIVIL RIGHTS REQUIREMENTS

The North Carolina Agricultural Extension Service is a named defendant in a Class Action Suit which alleges discrimination based on race. Because of this suit, our State Extension Service is exempt from many of the Civil Rights requirements. We were specifically excluded, by the Federal Administration, from having to fill out Tables five through twelve. However, acting upon the Advice of Counsel, we are trying to implement many of the measures which will assure equal delivery of services and equal employment opportunities to all individuals and groups regardless of race, color, national origin, sex, religion, age, or handicap.

The North Carolina Agricultural Extension Service will continue to provide requested data to civil rights authorities, provided such data is not prejudical to the court case. We will continue to administer the 1974 Civil Rights Initiatives, and Administrative Policy designed to assure non-discrimination. Employee Complaints will be processed under the Grievance Procedures of the North Carolina Agricultural Extension Service. Civil Rights training will be done at staff conferences, on Administrative Briefings, as appropriate, and at new workers' conferences. Our recruiting will be done in such a way as to attract as many highly qualified employees as possible, including minorities.

STATEMENT OF RATIONALE FOR SHIFTS IN RESOURCE ALLOCATION AMONG PROGRAM AREAS

There are no major shifts in resources planned for FY 81. We do expect to strengthen the leadership being given to Community Resource Development, Energy and Marine Science programs by creating a new administrative position. An energy coordinator will be hired from energy Extension monies. Also, we will realign Extension Districts such that one less District Extension Chairman position will be maintained. Neither of these changes is expected to result in substantial shifts in resource allocation.

A new Integrated Pest Management Coordinator has been employed to provide additional leadership to IPM programs.

A staff recruiting position has been created in order to centralize this operation and to assure compliance with Equal Employment Opportunity guidelines in recruiting.

STATEMENT OF RATIONALE FOR SHIFTS IN RESOURCE ALLOCATION WITHIN PROGRAM AREAS

No major shifts with program areas are contemplated. Because of shortfalls in various budgets, some reduction in delivery of services appears inevitable. We will be making adjustments in assignments and staffing within the constraints imposed by our budget situation.

A District Agricultural Program Leader has been given the additional assignment of Coordinator of Small Farm Programs emanating from the 1862 institution, a move that should provide complementary leadership for thrusts aimed at small farmers.

The Extension Economists will place special emphasis on the economics of production, emphasizing such aspects as cash flows, business financing, etc.

None of the changes being implemented is expected to impact adversely upon minority groups.

UNIQUE OR INNOVATIVE APPROACHES

Over the past four years, the N. C. Agricultural Research Service has been studying an integrated pest management approach for apple growers (IPOMS). This research has been interdisciplinary, covering all the pests and production practices common to 49 apple growers in Henderson County, N. C. Preliminary findings have been published in an I.P.O.M.S. Handbook, and final results will be available next spring.

The North Carolina Agricultural Extension Service plans to offer an Apple Management Advisory Service (AMAS) to growers in four major apple producing areas of the state beginning October 1, 1980. Scouts will be employed and trained by the Extension Service.

Virtually all the commercial apples in North Carolina are produced in the four areas slated to receive AMAS. The program is expected to produce equal or better quality and quantity of fruit with the same to less pesticides--resulting in more profit and less risk to growers, and a cleaner environment for the populace.

The Human Development Department will cooperate with the Governor's Advocacy Council on Children and Youth and the N. C. Coalition on Early Teenage Pregnancy in mailing information and promoting local seminars.

Model conferences will be held in several regions for professional and lay people interested in step-families.

A pilot study with Youth (4-H) to determine the effectiveness of educational strategies aas they apply to energy conservation will be conducted.

A statewide program on "Your Wood Can Last For Centuries" will be a joint effort with Forestry, Entomology, and Housing Departments.

Two home study courses, Women and the Law and Teaching Children About Money will be offered by the Family Resource Management Department.

AGRICULTURE AND NATURAL RESOURCES
NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

FY 81

Major Problems, Extension Objectives and Expected Results

A. Program Component I - Crop Production

CROP SCIENCE

The field crops area is making progress in obtaining the 1982 goals of 4-Sight. For specific commodities these goals have already been obtained and surpassed. Others are making progress toward these goals.

With the favorable price projections, there is growing interest in the various field crops with particular emphasis on net profit. The cost of production is growing at a rapid rate and until recently the return was holding steady or declining. However, the outlook for increased prices is improving.

Farmers are vitally concerned about the energy crisis and the increasing costs. They are following many conservation practices and tillage practices that tend to reduce the need for energy. We are seeing an increased use of legumes in forages, split application of nitrogen on many of the crops and reduced tillage.

The Crop Science Extension program is striving toward helping farmers to increase their net profits. Sound agronomic practices are promoted along with good management programs utilizing on-farm tests, in-service training, tours, agent conferences and mass media techniques to spread our message. Specialists will concentrate on keeping up to date on technical information through training schools, conferences, literature and other means.

Drought in 1980 has caused concern about irrigation and there are a number of new irrigation units. We expect to see this increase in the years to come and for this reason are putting increased emphasis on gaining more knowledge about irrigation to assist farmers in sound irrigation techniques.

Integrated Pest Management is a vital part of the agronomic program. With a new IPM Coordinator, this program should move forward at a rapid pace in many of the counties. Extensive training is continuing for agents concerned with IPM.

Liming continues to be a major problem. For this reason, a Lime Campaign is being promoted in cooperation with a number of departments, agri-business and other agencies. The high cost of production means increased emphasis on better liming programs.

With the conservation of energy requirements from the standpoint of travel, increased communication will be relayed through telephone and newsletters to keep agents up to date and to assist them in working with problems as affected by their clientele.

Corn

Severe drought in 1980, increased energy costs, and continued emphasis on soil and water conservation will be items of major concern in the corn extension program in 1980-81. Aflatoxin is also likely to be a major topic again. Research has helped answer some questions on aflatoxins and this information will be highlighted in producer meetings. On-farm tests evaluating conventional tillage compared with no-till into different residues will be continued, paying particular attention to nitrogen fertilization levels and soil conservation.

Irrigation is becoming more common among corn producers. We will be evaluating yield limiting factors under irrigation as well as trying to identify yield potentials for different soils when irrigated. Nitrogen management under irrigation will also be studied.

Work on liming, nematicides, insecticides as well as comparing the economics of corn and grain sorghum on drouthy soils will be continued. Field agent training sessions will be held to help more agents become aware of some of the field responses observed.

Emphasis in producer meetings will return to the all-practice approach to emphasize the value of putting all practices together in trying to produce a high quality, high yielding corn crop.

Cotton

Due to a more favorable price relationship between cotton and competing crops, cotton acreage in 1980 was increased 28%. Much of this increase was in the northeastern counties and came from either new growers or growers who had been out of cotton production for several years. If lint prices remain attractive, these growers will continue to plant cotton in the coming years. Extension's role will be to provide the growers, especially the new ones, with current information on production and pest management practices while continuing to develop and implement more cost efficient and productive management systems.

Educational efforts will include on-farm tests, producer meetings, tours, publications, newsletters, and mass media in subject matter areas where improvements can be made. The major emphasis will be placed on the on-farm testing program as an educational tool for growers and agents and also to fill the current void in cotton research in the state.

Areas to be considered include:

- Variety selection - emphasis on early maturity, fiber quality, and hybrid cotton evaluation.
- Management systems - involving varieties, plant populations, nitrogen rates, and growth regulators.
- Nitrogen management studies - tissue analysis programs, and evaluation of nitrogen stabilizers and methods of application.
- Fertility studies - in particular, rates, timing, and methods of application of boron. Studies will also be conducted to evaluate the response to other minor elements on sandy soils.

- Short season management system - an integrated approach, using currently available technology and information, to evaluate and demonstrate a management package aimed at achieving earlier maturity without sacrificing yield.

- Seedling disease control - evaluating commercially available in-furrow fungicides to determine the most effective product and the conditions under which a beneficial response can be expected.

- Defoliation studies - to evaluate new defoliants and harvest aid chemicals with particular emphasis on products which may enhance boll opening and/or inhibit growth.

Forages

Forages provide for more than 75% of the feed for the beef, dairy, horse and sheep industries in North Carolina. In addition, thousands of acres of hill and mountain land in North Carolina are best suited to perennial vegetative cover to conserve soil and water resources.

Clientele Problems

- Low yields: Producers are supplying insufficient amounts and/or an imbalance of nutrients to grow enough forage to meet animal needs.

- Poor seasonal production: The lack of warm season perennial species in forage programs, improper fertilizer application and poor utilization by animals have contributed to this problem.

- Poor forage quality: The lack of legumes, uncontrolled grazing patterns, poor haying management and the lack of knowledge concerning the nutritive value of forage being produced have contributed to this problem.

Objectives for Solving Clientele Problems

- A comprehensive forage-beef cattle demonstration is being established to illustrate the economic potential of extension recommendations. This is a cooperative effort between Crop Science and Animal Science to implement as many management practices as possible into one farm situation. Extension workers have control of a small herd of cows and will be able to show how seasonal forage production and quality can be manipulated for economic gain.

- Dairy feeding clinics will be planned during the winter to demonstrate the importance of forage testing on animal production and the management of forage for quality feed.

- On-farm tests and demonstrations will be used to show producers the potential for alfalfa and bermudagrass production. Renovating pure grass pasture by following soil test results and overseeding with legumes will be an important way of showing producers how to improve forage quality.

- Forage variety testing will play a major role in helping producers select adapted varieties.

Expected Results

- Nitrogen requirements to produce quality feed can be decreased by 50-150 lbs/A.
- Percent calf crop can be improved by 15-25%.
- Livestock losses due to grass related toxicities can be decreased significantly.
- The monthly feed supply can be smoothed out to meet animal needs.
- The increased use of alfalfa can increase dairy profits and combat crop pests through crop rotation.
- Renovating old pastures will improve animal production efficiency and save fossil energy.

Unique Approach

- A sod seeding drill is available for farmers in four counties to encourage and assist them in renovating old mountain pastures. This is a cooperative project between TVA, Land of the Sky Council and Extension.

Peanuts

Growers are attempting to reduce the cost of production. Most of the practices being followed are highly correlated with yield making it difficult to make any substantial reduction. A few areas do offer some promise such as:

- Having the soil assayed for nematodes. Many growers use nematicides without knowing the nematode population.
- Having a soil test. Low pH is common on many fields that are rented or leased on a year-to-year basis. Longer leases and soil sampling would help identify low pH fields.
- Identifying grass and weed populations by fields. Knowing the exact species present would help in selecting specific herbicides for control rather than using the more expensive "shotgun" approach.

Efforts will continue to help growers identify problems and their solutions. Major emphasis will be placed on: 1) Management practices; 2) date of planting and harvesting; 3) disease and insect control; 4) evaluation and comparison of newly released varieties; 5) effect of calcium on yield and quality; 6) effect of growth regulators on yield and quality; 7) evaluation of seed in field plots.

These efforts are expected to permit growers to produce peanuts at a lower per unit cost by increasing yields and improving quality at a slightly lower cost of production.

Small Grains

Small grain production has increased substantially for the third consecutive year and remains at its highest level (17 million bushels) in several years. Factors contributing to this high level of production are the release and availability of new and improved varieties by public and private breeders, execution of best management practices by growers, higher prices received per bushel, an increased interest in double cropping and no-tillage systems, soil conservation and livestock feed. These gains relate to and indicate significant progress toward obtaining the goals and objectives outlined in 4-Sight.

Despite the significant gains in small grain production, the areas listed above can still be improved upon according to the priority problems and needs of the counties. There are also inadequate fertility levels (low pH and N management), poor weed control, (ryegrass, garlic, etc.), poor disease control, no overall IPM program and inadequate marketing of crops. These problems need to be solved and best management practices demonstrated in order to save growers millions of dollars in time, energy and profits.

The small grain Extension educational program can accomplish these objectives through means of communication. As a result of Extension efforts, 80% of the growers are expected to choose the best varieties available for their specific needs and execute the best management practices by following recommended suggestions and make better use of market strategies and alternatives. If these steps are followed, the growers should save time and energy and realize an increase in profits. Safety precautions are expected to be used at all times.

Soybeans

With a record soybean acreage, profitable contract prices and optimism for profitable harvest-time prices, growers are more interested than ever in increasing yields to capitalize on the current profit opportunity. Many growers are just starting to seriously consider soybeans as a cash crop and are asking for help with basic production decisions. Other growers, who are producing soybeans at a higher management level (and who have generally been more accessible to Extension), are asking for more help on integrating production decisions, basing decisions on economics and on marketing. Since these are the areas that we agree growers need help with, that growers are asking for help with, and that Extension has useful information available on, these are the areas Extension plans to concentrate on in 1980-81.

Emphasis will be placed on liming and fertility, pest management, varieties, and refinement in precision of execution of decisions made to help raise yield levels and profits. Profit-motivated decisions, harvesting efficiency, wise marketing, pest management and integration of decisions into a total management package will be emphasized to further increase the profitability of soybeans, especially with the better than average producers.

Tobacco (Burley)

Blue mold continues to be the number one threat to burley production in the state. All acreage was infected in 1979. Agents estimate that 90-95% of the 1980 crop has been treated with Ridomil. Plant acreage appears to be a little lower than normal.

Grower interest in herbicides is increasing. Twelve on-farm herbicide tests are being conducted using different formulations, rates, and times of application.

Loose leaf marketing is still in the trial stage. The Secretary of Agriculture is evaluating results of the last two years before announcing a program for the 1980 crop. Marketing burley in loose leaf rather than conventional hand-tied form can save producers as much as 6 to 8 man days per acre.

Four on-farm variety tests are being conducted. Producers are keenly interested in yield and quality differences among the available varieties as well as differences in adaptation. Disease resistance is also of primary importance.

Sixteen on-farm sucker control tests are being conducted. Producers are interested in the different chemicals, sequential treatments, and timing of applications. Certain treatments are designed to reduce residue problems and still give acceptable sucker control.

Plant production continues to be a problem in the area. Demonstrations are being planned involving the use of herbicides in addition to methyl bromide to control white clover in plant beds.

Tobacco (Flue-Cured)

The Extension Service will continue a comprehensive educational program to promote economic use and placement of fertilizer nutrients in tobacco production. North Carolina producers are using excessive rates of nitrogen, phosphorus and potassium which result in unnecessary production costs over $10 million annually.

While excessive phosphorus and potassium are primarily of economic concern, excessive nitrogen reduces leaf quality and promotes excessive sucker growth which is difficult to control with suggested rates of available chemicals. Proper fertilizer placement is important for optimum utilization of applied nutrients and significantly improved plant stand, uniformity of growth, efficiency of spraying and harvesting operations, and therefore subsequent yields of cured leaf.

In recent years new problems involving sulfur and possibly micronutrient deficiencies have developed because some high analysis blends and liquid fertilizer formulations contain inadequate amounts of these nutrients for tobacco production on some soils.

Through the use of on-farm tests, meetings, and tours, and various mass media, the benefits of soil testing and the economics of fertilizer use will be presented to county Extension and agri-business personnel and to tobacco producers. A concentrated educational effort is needed to teach growers how suggested nutrient rates can be obtained from the various fertilizer grades sold in North Carolina. Also a substantial effort is needed to teach county personnel and growers to identify unusual nutrient deficiencies and how these can be corrected.

Residues of maleic hydrazide (MH) on cured leaf are currently higher than certain important foreign buyers find acceptable. An educational program will be continued with growers and agri-business to use contact sucker control chemicals and one application of MH for sucker control. This program is designed to provide good chemical sucker control and cured leaf with residues acceptable to buyers. This should improve the demand for our tobacco.

The role of herbicides in weed management will continue to receive educational attention, especially the consequences of root injury caused by preplant soil incorporated herbicides.

On-farm tests will emphasize the agronomic-economic approach to aid farmers in increasing net profit.

Turf

Many homeowners and turf managers do not know which turfgrasses are best adapted to the climatic regions of North Carolina, or which turfgrasses perform best for the particular purpose peculiar to a specific turf installation. Further, North Carolina is still experiencing an influx of homeowners from other climatic areas who need complete information on what, when, why and how. On-site tests and/or demonstration plots will be established, or presently established sites will be upgraded, to accomplish the above objectives.

The regional turfgrass associations and the Turfgrass Council offer real opportunities to reach more turf managers and others who need and desire more, as well as in-depth information relating to turf management. Revision of programs and initiation of new programs to do these jobs are required to reach this audience. Efforts will be intensified toward this end.

Updating and/or revision of publications and slide sets are continually necessary so as to include the latest technological and/or product advances. Emphasis will be applied in this direction.

Agent and/or manager training is a continuing need. Educational efforts will be directed toward training and toward revising and devising publications and other training aids.

Seed

The response of certified seed producers to Extension education programs has been gratifying. Most seed growers are evaluating and adopting new technology to improve seed quality. Our major educational programs will continue to be oriented toward providing technical information to seed growers and to assist them in applying the information in their resource management. On-farm tests will have a major role in developing and evaluating new technology for seed producers.

A turn-over in crops agents necessitates that additional efforts be made on training Extension agents through in-service training and personal contact. Such training and contact will help the agents gain confidence in the seed area and assist the seed grower with production techniques. Other efforts will be directed toward the seed consumer with the objectives of improving the careful selection and efficient use of seeds.

Printed materials are currently in various stages of development. These materials will receive major emphasis during the winter months. Our goal is to have seed production guides available to agents and soybean and peanut producers for use in 1981. The information will help our seed growers in their quest to become professional seed growers.

Our coordination of "Good Seed Week" activities with the North Carolina Seedsmen's Association and other agricultural agencies will continue. The program has been very effective in emphasizing to North Carolina citizens the role of seeds in their daily lives.

Northeastern North Carolina Area Program

Small Grains and Soybeans: The tremendous variability in yields and high cost of production that will characterize the 1980 corn crop promise to push producers in Northeastern North Carolina toward alternative cropping systems. It follows that consistent profitability of winter wheat followed by soybeans insures that acreage devoted to that cropping sequence will increase in the coming crop years. In anticipation of a modest shift in crop production patterns, we will continue, in our Area Extension Program, to orient our small grain and soybean work toward problems encountered in double-cropping situations. Field observations indicate that areas of small grain production warranting additional attention in our education programs include (a) varietal selection, (b) soil fertility and (c) disease identification and control.

With respect to double-cropping, producer inquiries confirm a substantial increase in the adoption of no-tillage soybean production methods behind small grains. Accordingly, our on-farm tests and educational endeavors with soybeans will continue to focus upon (a) no-tillage techniques and (b) the use of narrow-row planting patterns to offset late planting dates. Of particular interest in our no-tillage soybean work will be an effort to develop a program of chemical control of soybean nematodes. The expanding incidence of soybean cyst nematode and its increasing ability to attack resistant soybean varieties indicates that appropriate control measures for nematode control in no-tillage plantings should be delineated.

Corn: Reduced tillage production systems are rapidly becoming the principal interest of many corn producers. They are of particular concern in Northeastern North Carolina where algal problems in the Chowan River Basin dictate strong efforts to minimize the possibility of nutrient contamination of surface waters via agricultural operations. Through on-farm tests, grower meetings, and publications, producers will be informed of the effectiveness of production methods that will minimize the contribution of agricultural operations to nutrient contamination of surface waters.

Additional work with corn will involve on-farm tests designed to evaluate production methods for corn under irrigation. Due to the drought experienced during the current crop year, already high grower interest in irrigation is expected to increase. Specific subjects to be emphasized for 1980-81 in our educational and on-farm test efforts pertaining to irrigation include (a) nitrogen and lime use, (b) water scheduling, and (c) general soil fertility.

4-H

The youth of North Carolina are extremely important to its future as related to agriculture. Currently, the Crop Science Department has a number of urban students, both boys and girls, enrolled in its Bachelor of Science program. Some of these are coming via 4-H. A strong 4-H program can help train youth to have a better appreciation of agronomic practices and programs to help guide them in

career selection. Emphasis will be continued on demonstrations and projects that relate to helping youth understand the area of agronomy. Particular emphasis will be on the literature on "Exploring the World of Plants and Soils."

Weed Management

Specialists will continue to emphasize integrated weed management programs, encouraging county agents, agri-business personnel and growers to plan these programs based on weeds present, cropping practices, soil texture and soil organic matter content. On-farm tests will emphasize integrated weed management programs for specific weeds in each crop. These on-farm tests will be used extensively in educating County Extension Agents, chemical dealers and growers.

Weed specialists will participate in in-service training programs in the various commodity areas to further the knowledge of county personnel. Pesticide dealer education will play a major role in the winter-meeting season. Emphasis will be given to proper application of herbicides. We will assist in turf workshops for County Extension Agents.

Effort will continue on developing weed management programs in alfalfa and pastures and the control of multiflora rose utilizing on-farm tests and demonstrations.

Integrated Pest Management

Integrated Pest Management has become a significant tool for improving crop production in North Carolina. With strong interdisciplinary support, IPM programs are expected to be active in more than 22 counties in 1981. A strong educational program for county agents will improve the quality of IPM at the local level and provide the basis for expansion into counties not previously served by IPM. As county programs establish themselves, the Extension Service will remove financial supports. County programs are at this time established with strong financial support from the growers so that withdrawal of "seed" monies by Extension will not hinder the development of pilot programs. Evaluatory processes are being developed to quantify economic, environmental and social benefits of IPM programs to local agricultural communities.

HORTICULTURAL SCIENCE

The problems facing horticulture in the coming years are similar in many respects to those that have faced the industry for a number of years -- expansion of current commodities and development of new ones. The coming year will see an increase in agent training in order to transfer a greater amount of our technology base to the county extension office.

Another primary effort is indicated in preparation of printed material for county agents and public use. We expect a dramatic increase in publication output during the coming year.

The new year will see greater effort in delivering ornamental training directly to growers and agents. Much work will continue in the area of field plots. These will consist of herbicide evaluations, variety and fertility trials, on several horticultural crops.

Development of the Agricultural Weather Program will be continued in an effort to make a more viable force in North Carolina agriculture. Special emphasis will be given to development of a soil temperature monitoring capability.

Tree Fruits

The major problems with all tree fruits continue to be 1) the need for guaranteed annual production; 2) better quality so we can compete with other major producing areas; 3) an economic and foolproof method of fruit thinning for some apple varieties, especially spur type Red Delicious and most peach varieties; 4) production practices of little or no pruning, poor spray coverage with economy equipment and the desire to apply less and less chemicals, reduced quality below standard needed for profit.

Long range objectives have been accepted slowly, but positively on 1) high-yield per tree and per acre; 2) improved quality of harvested fruit; 3) higher net returns.

Result demonstration apple plots incorporating varieties, rootstocks, pruning, thinning, weed control, irrigating and sucker control have been successful and will be continued. The approved practice plans for peaches have been most successful and peach acreage is increasing. The recent ban on Nemagon is causing the new acreage planted in the Sandhills peach area to be set with caution.

Planting of apple trees has remained at nearly 100,000 trees planted per year. Production of eleven or twelve million bushels is possible in a few years. Peach planting, because of the ban on Nemagon, may move downward in spite of the excellent new North Carolina varieties. The "pick and pay" operations will continue to expand at a slow pace. Growers continue to be reluctant to admit the public on their property. Family units with little or no paid outside labor, and units not subject to OSHA appear to be one answer to saving energy, eliminating the middleman and as a result providing an excellent labor income for all members of the family. In locations where the crop is adapted and the consumers are available, the "pick and pay" idea will be pushed.

The fact that 80% of the N. C. apple acreage is represented by at least 50% of the present apple growers and even a higher percentage of the Sandhill peach producers, by their attendance at the State Apple Meeting and the State Peach Meeting plus the Winter Apple Schools and the Pre-harvest Apple Tours is a good sign of grower acceptance of a good program. The proposed addition of peaches to the two of the five original pre-harvest apple tours and the five Winter Apple Schools is planned to better serve the tree fruit industry.

Blueberries

Improved yields and more successful mechanical pruning, harvesting, sorting and packaging are essential for continued profitable blueberry production in North Carolina. Environmental conditions play a major role in the productivity of blueberries in this state. Cultivars and cultural practices that will reduce the effect on productivity will reduce the risk of crop loss or low yields and make blueberry production a more stable enterprise. The short supply and high cost of seasonal labor are responsible for the interest in mechanization.

Our objectives are to improve bush vigor, yield and farm income through encouraging growers to devote more attention to proven cultural practices and the adoption of new techniques in production and harvesting. These include selecting suitable land, providing adequate drainage, planting recommended cultivars, pruning as required, providing irrigation, fertilizing as needed and following the recommended insect, mite, disease and weed control programs.

Within two years, yields could be increased by 20% on existing plantings. In five years, a 50% increase in production per acre could be expected from a combination of old and new plantings. The addition of irrigation could increase yield an additional 50%. The large-fruited cultivars such as "Harrison" and "Bluechip" can be hand harvested much more rapidly than the older cultivars with smaller fruit. As a result, hand pickers can earn more per hour and are more likely to continue picking blueberries. These cultivars will make it possible for North Carolina growers to maintain a strong position in fresh market blueberry production until mechanical harvesting and sorting become a reality.

Objectives of some applied studies are:

- Develop a better understanding of the environmental requirements of highbush and rabbiteye blueberries.
- Develop a spacing and pruning system for highbush and rabbiteye cultivars that will fit into a production system based on mechanical pruning and harvesting.
- Evaluate growth regulator treatments for shortening the harvest period in order to reduce the number of machine harvests required.
- To develop more efficient techniques for grafting highbush scions onto rabbiteye rootstocks to take advantage of the wider range of soil and moisture tolerance of rabbiteye.
- To measure the benefits of drip and sprinkler irrigation on highbush and rabbiteye blueberries.

Strawberries

North Carolina has the largest strawberry acreage in the southern United States (2400 acres); however, the state average yield per acre in 1979 was only 5,200 pounds with total production of about 12.5 million pounds. Farmers in North Carolina must be made aware of more efficient up-to-date technologies which have permitted a few progressive eastern growers to achieve yields as high as 15 tons per acre with good management.

Objectives:

- Demonstration plantings of recently released cultivars.
- Use various media to disseminate current production information.

Grapes

The gross value of all grape production was $1,419,000 in 1979, down 20 percent from 1978. Low prices for muscadine wine grapes (74% of the crop goes to processors) from out-of-state wineries have caused a severe cost-price squeeze on grape growers.

Objectives:

- Evaluate four new muscadine pruning systems.
- Prepare a bunch grape production bulletin.
- Provide current grape production information to agents and growers.

Youth and 4-H

Current participation in horticulture projects, demonstrations, contests and activities is not satisfactory. Subject matter specialist time constraints will not permit training of agents and leaders directly by the specialist -- this time will be more efficiently used in upgrading the youth curriculum in Horticulture.

Objectives:

- Coordinate and provide educational assistance to horticultural youth programs.
- Prepare 4-H publications, newsletters, answer correspondence and telephone related to youth work, and develop slide sets and scripts.

Commercial Vegetables

Commercial vegetable growers are placing an ever-increasing demand on horticulture extension for variety and cultural information for both new and old vegetables. Greenhouse vegetables continue to expand at a rapid rate. The near future is expected to bring on significant increases in greenhouse cucumber and lettuce production.

The need for cooling and storage facilities in commercial vegetable production areas is acute. There is a very real need to mount a demonstrational and educational program on the subject of post harvest handling.

Sweet Potatoes

Over 40,000 acres of sweet potatoes were grown in North Carolina last year with a farm value of approximately $41,000,000. Most of this production was sold outside the state. About 70% of N. C. sweet potatoes are sold for fresh market with the remainder processed. There are over 1500 sweet potato producers scattered over the four eastern districts of the state, but mainly concentrated in eight counties. Less than 100 producers account for over 80% of total production.

It is important for Extension to provide current recommendations and expertise in production and problem solving to these farmers to assist them in maximizing their profits and minimizing their losses. On-farm trials, grower meetings, publications, broadcasts and other methods of communication are used to teach county agents and their farmers. Methods of teaching through farm supply dealers will be investigated.

Sweet potato seed improvement on the farm is being promoted through a multi-media campaign entitled Yam Alert. Seed selection and management are major components of this program, which is aimed at minimizing mutations and disease problems. Fertilization rates, ratios and application methods are being studied to improve efficiency and increase profits without sacrificing quality. The feasibility of producing alcohol for gasohol from off-grade and industrial type sweet potatoes will be investigated.

Irish Potatoes

There were over 17,000 acres of Irish potatoes grown in North Carolina last year with a farm value of over $13,000,000. Three-fourths were produced in the eastern counties by just over 100 large growers. They produce a summer crop, approximately 80% of which is for potato chip production.

It is important for Extension to provide current information and expertise in problem solving to these farmers to assist them in maximizing their profits and minimizing their losses. Growers meetings, surveys, on-farm trials, broadcasts and other methods of communication are used to teach county agents and their farmers. Specific projects include variety demonstrations and seed production and fertilizer trials. Promising potato selections need to be tested under North Carolina conditions (on-farm) for best results. Fertilizer efficiency is becoming more critical and our tests with modified formulations and applications are important to the future of this industry. Proposed all-practice demonstrations should help potato growers to decrease their losses and increase their yields.

Nursery Crops

There are approximately 1,900 certified nurseries in North Carolina with 5,100 acres of salable landscape plants. Acreage in production may be three times this. Crop value for 1979 was $22.4 million. Additionally, there are approximately 1,600 Christmas tree growers in the state with the crop valued at $10 million. There are more than 120 professional landscape contractors and probably 5,000 or more people with major responsibilities in landscape related enterprises and services. Many residents of the approximately 2,000,000 households in North Carolina take considerable pride in their home landscapes and also need landscape and weed management information.

The nursery, landscape and Christmas tree industries have been expanding steadily throughout the United States during the past several years. With the increasing market demand for nursery and landscape plants, along with the increasing cost of production and maintenance, Extension is being pressed to provide information for people entering the nursery, landscape and Christmas tree business as well as those already well established.

The generation, compilation and dissemination of production and maintenance information, with emphasis on development of efficient weed management programs, will enable growers and landscape personnel to substantially improve their economic condition and plant quality. North Carolina State University can provide leadership in the development and implementation of weed management programs for the nursery, landscape and Christmas tree industries.

Major objectives of work for 1980-81 will be to:

- Establish, continue and maintain herbicide evaluation and weed management plots.
- Compile and prepare herbicide and weed management information for the North Carolina nursery production guide and other publications.
- Disseminate information to county extension agents, growers and other landscape related people through field demonstrations, meetings, publications and individual contacts.

As more and more people turn toward nursery crop production as a source of income they must be educated in the areas of business management and record keeping, propagation, nutrition, pest control, site selection, culture and marketing. Established nurserymen must be kept abreast of the very latest and most innovative techniques if they are to remain productive, competitive and make a profit.

Floricultural Crops

The uncertainty and availability of fuel to heat greenhouses for floral crop production continues to be a serious problem. While conservation of fuel is very important, other sources of fuel need to be

explored. Unless direction is given to the floral industry, many small, marginal-type growers will go out of business.

Labor continues to constitute the single largest production cost of floral crops. Methods for system production are needed for both small and large growers. Growers need to consider new structures and arrangements of benches, beds, etc., to obtain the most efficiency and production.

One of the most effective ways to teach new skills and methods is through area, state and local greenhouse meetings. This training will result in more efficient usage of the greenhouse to produce floral crops. New sources of fuel will be suggested and where possible evaluated. Unique systems for specific crops will be recommended to both new and old growers.

Consultation will be offered to individuals and groups in order to make sound managerial decisions. Results of a recent North Carolina State research project, "Crop Optimization," will be disseminated to growers through newsletter, short courses and direct contact. New crops and combination of crops will be stressed. Necessary equipment, structures and supplies will be outlined for the various size producers.

As a result of this work, more growers will: (1) become aware of methods and new techniques to conserve energy; (2) adopt new energy sources; (3) install or adopt new systems for reduction of labor costs. New species that require cooler temperatures will be tested and recommended when feasible.

Applied studies:

(1) The effects of several growth regulators will be studied to determine their effects on growth and flowering of several floral species.

(2) The effect of several fertilizer sources with various soilless media will be studied.

(3) New species and cultivars will be investigated to determine the feasibility for including them in a production program.

Pesticide Education

The North Carolina Pesticide Law of 1971 and the Federal Environmental Pesticide Control Act of 1972 (FEPCA) collectively require that dealers who sell restricted pesticides, commercial applicators who apply any pesticide, public operators (city, county, state, federal government workers) who apply any pesticide, pesticide consultants and any farmer (private applicator) who uses a restricted-use pesticide be certified and/or licensed in North Carolina. Persons involved in structural pest control must be certified to use restricted use pesticides under FEPCA and the North Carolina Structural Pest Control Law of 1955 as amended through 1975.

The N. C. Agricultural Extension Service has been charged with providing educational opportunities for these persons needing help in meeting certification/licensing requirements.

Extension objectives in this "area of responsibility" involve (1) initial training of new county pesticide coordinators, (2) updating of old and new coordinators in each county, (3) providing training for new dealers, commercial applicators, public operators and consultants, and (4) providing an acceptable "state plan" for meeting the future educational needs involved in re-certifying our dealers, commercial and private applicators, public operators and consultants. Such a plan has already been submitted to the Pesticide Board for commercial applicators and involves a continuing education program of 3-12 hours during a five year re-certification period, depending on the specialty category, for these applicators.

We believe our concentrated efforts during the past six years in pesticide education--51,000 farmers, 2300 dealers, 2700 ground applicators, 205 aerial applicators, 1900 public operators and 45 consultants trained--have provided essential information needed to use pesticides in a safe and proper manner.

Our main task in pesticide education in FY 81 will be to develop quality programs for the re-certification of commercial pesticide applicators, public operators (governmental agency pesticide applicators) and consultants. This task will be the primary responsibility of some 25-30 specialists in the Departments of Biological & Agricultural Engineering, Crop Science, Entomology, Forestry, Horticultural Science and Plant Pathology. These specialists must develop programs for their specific areas of re-certification.

Main tasks of the Pesticide Training Coordinator will be to (1) coordinate the re-certification effort, (2) prepare a program in the area of safe use and (3) prepare in cooperation with NCDA a program on Federal - N. C. Laws and Regulations.

Landscaping and Ornamentals

An interest in landscaping and ornamental plants is constantly being expressed by homeowners, professional landscape industry and the consumers of landscape services. Landscape design, construction, culture and maintenance of plants are the various aspects where information is needed.

Such an accelerated interest results in an overwhelming educational task for Extension. In order to meet the demand for landscape information, emphasis will be directed to training programs for county agents (especially new agents), offering workshops to the professional industry, and developing the mass media processes. An effort will be made to update and expand the slide sets used by agents. New audiences will be contacted and introduced to the Extension Service.

These efforts should reflect a better use, implementation and maintenance of ornamentals. A top quality product in all aspects of the landscape industry is desired, and through more educational efforts and less service related activities this goal can be reached.

Western North Carolina Area Program (Vegetables)

The general clientele problem is that of low income for the limited resource farmers of western North Carolina. Land suitable for extensive, highly mechanized farming is extremely limited; most tillable land is in small, irregular shaped hillside fields. Many farmers seek employment in industries in the area and farm part-time to attempt to provide the family needs. Utilization of high value crops that are adapted to the region and/or more efficient cultural techniques would result in improved farm income for these people.

The overall Extension objectives include (1) participating in on-farm and on-station demonstrations with appropriate crops and/or cultural techniques, (2) the preparation and up-dating of educational publications for use by county Extension staffs and the farmer clientele, and (3) participation in agent workshops, grower meetings and farm tours.

Expected results include acquainting and educating more farmers in the most efficient methods of growing high value crops in the western part of the state. The educational efforts should result in greater use of recommended production techniques and improved farm income.

Applied studies and pilot efforts include a continuation and expansion of on-farm demonstration and pilot commercial plantings of broccoli and cauliflower in three to five counties. There will be a continuation of development of on-station ginseng plantings, a long term, high value native herb crop plus a follow-up of on-farm demonstration plantings and the initiation of new ones. The objectives are to acquaint agents and growers with the cultural needs, the adaptability and the commercial potential of these crops in western North Carolina.

Western North Carolina Area Program (Nurseries)

The number of nurserymen and nurseries in western North Carolina is rapidly increasing. The nursery business has high dollar returns per unit area, is non-destructive to the environment, and is a way to utilize local resources and people so that North Carolinians can remain on the land.

Nurserymen in western North Carolina can be separated into two broad groups: (1) a few, well-established, experienced producers, and (2) a large number of producers with little, if any, experience or knowledge of the nursery business but possessing great enthusiasm for making nursery stock production the major family source of income.

The short and long run objectives of this position are to provide the assistance necessary, through an Extension education program, to upgrade the quality of plants produced, increase the number of plants produced, and to expand the knowledge base of the nurserymen. By doing this, family income will be both increased and stabilized. Dollar productivity of land will increase and the viability of the nursery industry in western North Carolina will be firmly established.

Weather

Accurate weather information is crucial to making optimal decisions in agricultural operations. A program to provide weather information pertinent to agriculturalists has been instituted at North Carolina State University. The purpose of the program is to provide N. C. agriculturalists with the type of weather information they require to make good decisions in their operations. The weather forecasts provided by the National Weather Service are used to produce twice-daily agricultural weather advisories. These advisories are the result of integrating the forecast with knowledge of agricultural activity currently being carried out. Crucial to the program is the education of the agricultural meteorologists about all North Carolina agriculture. Also the users of the program should be educated so they may take full advantage of the advisories in their decision-making processes.

Data from the Touch-Tone weather system is a key ingredient in the advisories. One responsibility is to maintain and upgrade this network so that the data produced is accurate and up-to-date. A monthly newsletter summarizing Touch-Tone station data will continue to be produced.

Objectives:

- Reduce losses due to adverse weather conditions.
- Reduce risk associated with agricultural production.
- Improve decision making capabilities of North Carolina agriculturalists.

Weeds

On-farm tests, field days, agent training sessions and the development of a bulletin and slide sets on pesticide incorporation for agent training and dealer use will receive a high priority. This program is aimed at better utilization of chemicals. A multidisciplinary effort in the development of pest management programs for fruit and vegetables will consume most of the specialists' time beyond the normal weed control programs in fruit and vegetables. Specific emphasis will be placed on controlling problem weeds and development of mini-computer weed control programs for apples and strawberries.

Home Gardens

The growing of a vegetable garden continues to be one of North Carolina's most popular spare time activities. Economic and energy-related conditions have contributed to the renewed interest in the growing of a backyard garden to provide productive, inexpensive and enjoyable leisure close to home.

Overall objectives:

- To provide technical education leadership to county agents and home gardeners through field work, slide sets and printed material preparation.

- Cooperate with other Department Specialists in disseminating home horticulture information.

Expected results:

- Improved yields and more efficient use of garden space.
- Productive close-to-home spare time activities such as exercise and relaxation.
- Savings in family food budget.
- Money into the state's economy from the purchase of gardening supplies by gardeners.

SOIL SCIENCE

The wise use of North Carolina soils requires a dedicated effort to help individuals, families, business groups and governmental agencies better understand their potential use, as well as limitations for the purposes for which they are to be, or are being used. Soils are used to grow plants for food, fiber and pleasure; they are used to support housing, provide recreational sites, for disposal of wastes, and as space for industrial and highway development.

The primary objective of the N. C. State University Extension Soil Science Department is to assist farmers, foresters and other publics with implementation of wise land use practices. Land use is determined by economic return, conservation principles and governmental regulations. The educational opportunities to meet the above objective will be implemented by using educational techniques such as on-farm and on-site tests, in-service training, study tours, agent conferences and training, and mass media techniques to make people aware of sound soil use practices.

Soils and Land Use

Soil characteristics impose limitations in the competition between agricultural and non-agricultural land use. In crop and animal production, improper fertility and lime practices are prevalent, along with poor land management and use in terms of cropping systems and waste utilization. Many non-farm uses reflect inadequate interpretation and evaluation of soil resources in planning the use of land. The development of waste disposal systems where the waste can be utilized as an economic, agricultural input--using the soil as a component--is dependent upon an understanding of soil characteristics.

During the current year, priority will be given to the following specific areas of work:

- Emphasis will be given to coordinating and stressing the importance of understanding the value of soil test and plant analysis information in alleviating improper use of fertilizer ratios in crop production, its value in recognizing lime needs, and their value as diagnostic tools.

- The evaluation and demonstration of various approaches to land preparation for major groups of soils for corn, soybeans and other crops will be continued. This ranges from deep tillage such as chisel plowing and subsoiling to no-tillage, with emphasis on effects of these practices on yields, erosion concerns and production efficiency for specific soils and field conditions.

- Develop an educational program for extension clientele of western North Carolina, especially, that demonstrates sound soil management practices, including fertilization, of some specialty crops such as native ornamentals, Christmas trees, mountain fruit and vegetables and forage crops which are unique to that area.

- Provide technical and educational support for an accelerated soil survey program in North Carolina.

- Intensify educational efforts for interpreting soil properties for agricultural and non-agricultural land use, with development of suitability ratings for various land uses such as waste disposal, transportation, urban and industrial development, recreation and agriculture.

- Provide technical and educational support to aid in the development and implementation of legislative programs for sedimentation-pollution control, land use policy and environmental regulations.

- Extensive efforts will be continued in the development of interpretative guidelines for soil application and treatment of waste products from agricultural production and processing units, municipal and domestic treatment plants, and industrial sources.

- Provide technical support and help in the development of materials for 4-H and other youth audiences concerned with soil management and with the study of soil resources, agriculture, biology and ecology.

Blackland Soils

The high organic matter soils of eastern North Carolina require special management due to their unique physical and chemical properties. They vary from dark surfaced mineral soils with few special needs to deep, woody, colloidal mucks with severe hazards. Such soils are naturally very acid and infertile and need large amounts of lime and appropriate nutrients for successful crop production. Wood imbedded in some soils hampers land development and tillage.

Blackland extension soil programs include newly cleared land as well as older land, some of which has been in cultivation for 250 or more years. Management requirements for the various types of land are quite different.

During 1980-81 the following areas will be emphasized:

- Liming: Soil testing will be encouraged as the only accurate way to determine lime needs, and liming as a total integrated program involving lime quality, distribution and incorporation will be promoted through newsletters, agent training and grower meetings.

- Fertilization: Efficient nutrient use will be emphasized because of the rapidly increasing cost of fertilizers.

- Cultural Practices: Emphasis will be on maintaining long-term productivity with minimum loss of the soil resource and minimum energy cost. Crop rotations for management of insects and diseases will be strongly promoted. Growers will be encouraged to use reduced tillage where possible to conserve fuel, and land disposal of animal wastes will be encouraged to avoid degradation of drainage water quality. Water management will continue to be a high priority with more emphasis on prevention of over-draining.

ENTOMOLOGY

Apiculture

The small but important industry of beekeeping in North Carolina continues to grow and attract the interest of potential beekeepers, particularly hobby beekeepers. This industry directly contributes approximately $6 million to the state's economy annually through the sales of honey and related products, and it additionally increases the value of the state's fruit and vegetable production by another $30-$35 million through the value of crop pollination. The N. C. Agricultural Extension Service apiculture program is a comprehensive approach with specialized efforts to meet the particular needs of the commercial beekeepers, hobby beekeepers and growers.

The needs of the commercial beekeepers have received intensive effort during the last several years with much of the financial support for that program coming from a series of grants from the U. S. Coastal Plains Regional Commission. During the last two years the commercial beekeepers have been organized into the Carolina Honey Producers Cooperative and the state's first honey processing plant was established. Our involvement with the Co-op and all of the honey packers in the state will be reduced to providing technical assistance as needed with a reduced emphasis on serving as an intermediate agency between the honey producers and the honey buyers.

The needs of the state's hobby beekeepers will continue to be met through the established approaches of short courses, subject matter meetings, a quarterly newsletter, various publications and agent consulting services. Particular emphasis will continue to be placed on using the N. C. State Beekeepers Association as a focal point for information dissemination. One area that will receive new emphasis is the request for more "hands on" or practical experience for the beekeepers.

The needs of growers who rely on bees for pollination are currently being met through subject matter meetings and the publication of a list of beekeepers who provide bees for pollination. Special emphasis will be devoted to the cucumber industry this year as a typical example of a bee related growing group. This emphasis will be to demonstrate the importance of bees in cucumber production and to determine the use of bees by cucumber growers. This work will involve the following activities:

- Survey of how many cucumber growers are renting bees for pollination.
- Survey of rental prices and strength of the units being used for pollination.
- Demonstration tests on the effectiveness of bees in cucumber pollination.

Community Pest Control

North Carolina contains a myriad of pests which interfere with man's ability to enjoy his environment. Mosquitoes and ticks are foremost among these pests.

Mosquitoes. Nuisance caused by mosquitoes is most severe in the Coastal Plain. Income in this area from tourism alone amounted to over $150 million in 1979. To cope with problems caused by biting flies, counties have developed municipal or countywide control programs. There exist over 50 mosquito control programs that employ 100-150 workers in the coastal zone. Local agencies are not presently able to adequately educate new workers or provide for the continuing education of currently employed workers.

In 1980-81, extension efforts will center on the following tasks:

- A training manual will be developed for specific audience characteristics and needs of (a) mosquito control workers, (b) county extension agents and (c) environmental health specialists.
- Training workshops on mosquito control will be held in the Coastal Plain or Piedmont regions.
- The North Carolina Division of Health Services is restructuring its mosquito control program. Efforts will be made to assist the state in this task.

American Dog Tick and Rocky Mountain Spotted Fever Educational Program. For the last 10 years, North Carolina has led the nation in reported cases of and deaths from Rocky Mountain spotted fever (RMSF). This disease is most prevalent among children and each year causes a large economic loss through medical costs from hospitalization and treatment.

To meet the educational needs of county environmental health specialists and extension agents, nurses and other medical professionals, a project was initiated in FY 79 to formulate an educational approach to the RMSF problem with the overall objective of developing educational programs and materials. This objective was completed with the development of three slide-tape cassette programs, one filmstrip cassette and supplemental teaching guides and several leaflets.

Efforts will be continued next year to:

- Make county agencies aware of the educational programs and materials.
- Develop and participate in disease prevention workshops.

Tick Control Demonstrations. The lone star tick, Amblyomma americanum, causes extreme nuisance to rural residents in the Coastal Plain. Control of ticks over large areas is impractical; however, tick control on homeowner property can be accomplished with insecticides. In cooperation with

A&T State University and the Sampson County Agricultural Extension Office, a demonstration project on tick control was initiated in FY 80 and will be continued in FY 81. The objects of the project are:

- To test currently registered acaricides with the intent of improving recommendations for homeowners.
- To demonstrate to rural residents the chemicals, proper application procedures and equipment available for tick control.

Cotton

The cotton pest management project will continue to utilize both traditional insect pest management vehicles, such as population monitoring traps, regional scouting schools and community management groups, and to test new, more novel approaches to insect management.

Several new approaches to cotton production are being tested. The project is in the third year of evaluating an insect management approach designed to shorten the cotton growing season when combined with other shorter season production practices. We feel that systems based on earlier varieties, selective nitrogen use, avoidance of chemicals which are either incompatible (some herbicide and insecticide combinations) or cause maturity delays (organophosphate insecticides early in season) and protecting early fruit from insect damage will avoid much of the weather related losses due to cold, wet springs and/or early frosts. With appropriate help from other disciplines, several of these shorter season systems will be tested in 1981 via large scale grower demonstrations.

Ornamentals

Agents with horticultural responsibilities in some counties have indicated a need for more training or assistance with ornamental crops. In the next year these agents will receive extra attention in addition to the in-service training efforts for all horticultural agents to introduce the manual, Insects and Related Pests of Shrubs, which is due for publication in October 1980. Efforts will continue toward the publication of manuals on pests of turf, trees, field crops, vegetables, fruits, man and animals and other commodities. These manuals are designed specifically for county agent use. Slide sets and video tapes for county agent use will also be prepared. The kiosks developed for the state fair will be made available for county agent use at trade fairs and other functions.

Applied research in the areas of mealybug survey, control and phytotoxicity of pesticides will be continued.

Livestock, Forages, 4-H

Ectoparasites of livestock and insect pests associated with confined livestock and poultry operations cause significant economic loss and create a less favorable environment for man.

The horn fly and face fly continue to trouble cattlemen in many areas. Special emphasis will be given to assisting agents and producers to implement wider and more effective use of self-treating devices.

Hog mange and lice problems are found in all types of swine operations. A combined effort is planned to more accurately assess incidence and severity of mange and to implement better management programs for mange and lice.

To bring about a clearer understanding of filth fly habits and control among the public, livestock and poultry producers, public health and other government agencies, efforts will continue to assist extension agents in developing consolidated county plans to reduce and minimize nuisance complaints.

A revised alfalfa weevil control program to enable growers in all production areas to accurately determine need to treat and timing will be developed. This should save insecticide, fuel, environmental contamination and increase profits.

The great turnover of county 4-H agents and inadequate training contribute to a serious unfamiliarity with 4-H curricula, programs and activities. To overcome this obstacle, a series of agent training workshops organized by curriculum areas is planned.

Structural Pest Control

Cooperation with the pesticide education specialist will be continued in conducting regional certification schools in the structural pest category. Although many commercial structural pest control technicians continue to desire certification, an increasing number of persons employed in food, residential, health care and other related service industries are also attending these schools. According to 4-Sight, there are about 800 food-related processing plants in North Carolina. A significant number of these are large enough to do much of their own pest control work, offering a new audience to be served by Entomology Extension.

Once certified, structural applicators must meet certain minimum educational standards at five-year intervals to maintain their certification. Our training activities, beyond the initial certification schools, carry continuing education credits (CEU) and/or the newly instituted continuing certification credits (CCU), which may be applied toward recertification requirements. These activities include one-day workshops planned in cooperation with the N. C. Pest Control Association covering topics in (1) general pest control, (2) wood-destroying organisms and (3) fumigation. An annual three-day pest control technician's school will be similarly structured to allow choices of greatest interest or need. Through regular attendance, a person may satisfy the recertification requirements in two to three years, and the majority of certified applicators choose our training as the most effective means to meet these requirements.

Stored Grain Pests

According to 4-Sight, about 180 million bushels of corn and small grains valued at over $500 million will be produced by North Carolina farmers in 1982. By 1982, many more of our farmers will have on-farm drying and storage to take advantage of additional marketing systems. Unfortunately, many of these facilities are being constructed with little concern for pest-free storage. Consequently, much grain becomes badly infested.

Our extension agents need additional training in this area. A comprehensive in-service-training program will be developed for agents including demonstrations in protecting, treating and fumigating farm-stored grain with appropriate references and visuals to enable agents to carry out effective educational programs in their counties. Farm grain storage losses could easily be cut in half if farmers would utilize present knowledge and technology in storing these valuable commodities.

In recent years malathion resistance of the Indian meal moth, Plodia interpunctella, one of the most damaging pests of stored grain, has become readily apparent under North Carolina conditions. Dipel^{R}, a brand of Bacillus thuringiensis, has recently been approved by EPA for moth protection of stored grains. To evaluate its effectiveness against malathion-resistant moths, on-farm tests will be performed as a capping-off treatment to grain bins.

Expanded Food and Nutrition Education Program

Due to severe pest infestations in many low-income homes, much food is either consumed or contaminated by pests, thereby making it unsuitable for human consumption. Since the majority of low-income families have $200 or less per month to spend for food, these pests significantly lower their dietary potential.

To counteract these deleterious consequences, area workshops and demonstrations for program aides, organized in cooperation with EFNEP area agents, will be held to teach economical, effective control of insect and rodent pests. The aides may then counsel their families on a one-to-one basis to achieve effective economical pest control.

Corn, Small Grains, Sorghum and Soybeans (Piedmont and Mountains)

Corn, small grain, sorghum and soybean producers in the Piedmont and Mountains annually make decisions regarding the management of insect pests on 1.1 million acres. Approximately 60 percent of the commercial feed grain and soybean producers are aware of the integrated pest management (IPM) concept. However, fewer than 10 percent of these farmers understand IPM well enough to seek implementation on their farms.

The Piedmont and Mountain feed grain extension entomology program continues to have the promotion of sound insect management principles (in cooperation with other pest control disciplines) as the major

objective. Problems regarding the utilization of IPM principles were identified by 13 Piedmont and Mountain counties. Problem recognition coupled with positive learning experiences results in solutions.

Plans to capitalize on county agent and grower interest in IPM will concentrate on increasing county agent confidence. Continued participation in in-service training and county-sponsored demonstration plots provides positive learning experience for county agents and farmers in the areas of insect identification, scouting, threshold, cultural effects on pests, etc. In addition, practical field instruction will be offered to expose county agents, farmers, pesticide dealers and applicators to the fundamentals of insect management in corn and soybeans.

Progress is detectable in the understanding and utilization of IPM principles. This effort is expected to increase the number of commercial farmers experimenting with pest management principles from 15 percent to 25 percent during FY 81 in at least five counties.

Field Crop Insect Alert

During 1978 approximately $65 million were lost in North Carolina to insect pests of field crops. Information from the Insect Alert program informs growers of developing insect problems in field crops. Such information can efficiently be used by crop advisors to (1) properly time scouting, (2) inventory resources (chemical, equipment, etc.) and (3) plan action should local insect problems develop.

The Field Crop Insect Alert program will continue to be provided for farmers and crop advisors through Teletip. The program will support IPM statewide and will serve to (1) test scouting methods, (2) provide statewide field crop pest population appraisal and prediction and (3) distribute pest population and distribution information to crop advisors.

Information will be channeled into the program from all functioning county pest management programs. In addition, insect trapping and routine surveys will be conducted to monitor the activity of major field crop pests statewide. Special surveys will be conducted when changes in a pest's behavior, habitat or distribution are detected.

Wood-Destroying Insects

Considerable effort has been expended by extension specialists in the past to educate the pest control and building industries in North Carolina as to the hazards to wood in structures presented by wood-destroying organisms and how to combat them. There is still a significant lack of concern on the part of the building industry in using good construction practices to prevent damage by wood-destroying insects and fungi.

A program to combat this problem was planned for 1979-80 but most of it had to be postponed. It will be instituted in the coming year. It consists of a public awareness program entitled "Your Wood Can Last for Centuries" which was developed by the Forest Service, USDA. This will involve the specialists in half-day workshops in several parts of the state

to train county personnel and in the preparation of additional educational programs for 4-H, the general public and the building industry. Evaluations will be conducted to determine the effectiveness in reaching and changing the attitudes of the target audiences.

Turf, Peanuts, Home Gardens

In the area of commercial turf, a major effort will be made to improve the skills and understanding of commercial turf managers and selected agents on identification, management and control of insect problems. Approximately 80 county extension agents will attend four three-day regional turf and ornamental workshops. A statewide turf conference, meetings with five regional turfgrass associations, personal visits, demonstrations, publications and other meetings will be used to upgrade the management skills of commercial turf managers to better equip them to solve insect problems.

Objectives are to train agricultural agents, commercial turf managers and agribusiness personnel to recognize and manage insect problems on commercial turf areas and to train turf managers and agribusiness personnel to handle and apply pesticides safely. With better trained agricultural agents and commercial turf managers, more efficient use of time, labor, energy and money will be realized in managing North Carolina's 25,000 acres of golf course turf and 350,000 acres of other commercial turf with an annual maintenance cost of over $50,000,000.

The major program associated with clientele in peanut production is to train agents, growers and agribusiness leaders on the value of an overall peanut insect management program. Included will be demonstrations in cooperation with crop science and plant pathology specialists and county agricultural agents on the value of insect-resistant varieties such as NC-6 in a management program. The interactions of certain fungicides and insecticides and their effect on certain pests will also be demonstrated.

The overall objectives of the project are to change agricultural agent, grower and agribusiness attitudes on use of insecticides on peanuts from present "no damage tolerance" to acceptance of economic thresholds and spray-as-needed concept, develop an insect pest management program for peanuts and implement the program as a pilot project in at least three counties and develop publications and visuals for an insect pest management program. The acceptance of the insect-resistant peanut variety NC-6 and the adoption of an insect management program for insects and mites could result in a savings of 10-25 percent of the total cost of insecticides on peanuts.

With the increased cost of living, the increased cost of gasoline and other travel, more emphasis will be placed on at-home activities such as vegetable and flower gardening. It is expected that county extension workers and volunteers who have participated in training provided by specialists will recognize and control common homeowner insect problems on ornamentals and vegetables where they can be handled on a local basis.

Objectives of applied studies and demonstrations are to:

- Compare yield and quality of NC-6 peanut variety to other commercially grown varieties.
- Expand labels for currently registered insecticides on peanuts.
- Obtain labels for new insecticides on peanuts.
- Expand labels for currently registered insecticides on home lawns and commercial turf.
- Obtain labels for new insecticides for insect control on home lawns and commercial turf.

Poultry and Livestock Pest Management

Poultry and livestock production is of great importance to North Carolina agriculture, grossing over 40 percent of the total farm income in 1979. There are numerous pests present at poultry and livestock production facilities which could cause significant economic losses by having a direct adverse effect on animal health, growth and production. A pilot IPM program has been developed to provide information to poultry and livestock producers and is presently being implemented in Chatham and Duplin Counties.

The objectives of this pilot program are:

- To implement a systematic external parasite, filth fly, mosquito, beetle, rodent and bird pest management demonstration program for use on North Carolina poultry and livestock farms.
- To utilize the program as a training facility.
- To evaluate the cost effectiveness of the program.
- To determine the practicality of establishing integrator, producer group or private farm service organizations for continued pest management services.

Presently, 30 producers associated with 12 integrators are enrolled in the program with a total of 800,000 poultry--both chickens (caged layers, breeders and broilers) and turkeys (fryers and breeders)--and 12,000 swine (breeders and feeders) being scouted. This program will provide a continuous flow of timely pest status information to producers and integrators and will be delivered with written recommendations for action.

The unique producer-integrator relationship that exists in poultry and livestock production will be utilized in evaluating the cost effectiveness of the program through comparisons of farms on the program and those not receiving pest status information and management recommendations. In addition, meetings with producers and integrators will be held to solicit their input on program effectiveness and direction.

Fruits and Vegetables

Commercial vegetable production in North Carolina represents more than $170 million on 220,000 acres. Small and tree fruit production adds another $70 million. The successful production of these high-value-per-acre commodities demands sound management decisions on pest control. In 1979 insect losses and/or the cost of their control exceeded $5 million.

Extensive use of on-farm test demonstrations with standard and new products will continue to provide additional efficacy, phytotoxicity and residue data so badly needed for the development and acceptance of sound control recommendations and product registrations.

To provide the requested and needed training on fruit and vegetable insects to growers and county agents, on-farm tests, tours, grower meetings, agent workshops and publications will be used to help ensure effective communication. Radio and newsletters will be used as special needs dictate. To assist agents in handling routine questions, diagnostic clinics, slide sets with scripts and preserved specimens will be produced.

Cooperative insect monitoring, assessment and daily reporting through the use of black light traps, yellow traps, trap crops and field sampling via Extension Teletip "Pest Alert" tapes on Irish potatoes, tomatoes and cucumbers will be continued for the third year. Active field scouting programs have been established on potatoes, cucumbers and tomatoes. Further development on multi-crop pest management programs and on a proposed Apple Management Advisory Service will help growers determine the most effective pest control strategy. The squash trap crop network for the initial detection of the migratory pickleworm will be continued throughout the cucumber-growing area.

The revision and expansion of our successful departmental Insect Note series on fruits and vegetables will be continued for grower and agent consumption. The wide acceptance and use of this series on the biology and control of insect pests has led to the development of a comprehensive training manual on the major and common insect pests on fruits and vegetables in North Carolina.

Tobacco

Tobacco provides nearly one-third of direct farm income in North Carolina. Recently, however, rising direct and indirect costs and stable or declining sales have threatened the profit margin on which the prosperity of North Carolina tobacco farmers is based. The goal of the entomology tobacco program is to provide growers with the knowledge necessary to maximize the efficiency of their operations.

Unfortunately, the turnover rate for tobacco agents is high, and many are relatively inexperienced in tobacco production and protection. Moreover, many agents, both old and new, have no training in entomology. Training in insect identification, biology and management will continue through existing one-day update sessions, individual contacts and the

summer pest management course. Support materials will also be updated or developed. These will include extension publications, slide-tape sets and a teaching collection of (primarily) freeze-dried specimens. A system of IPM will be encouraged by the following steps:

- Growers and agribusinessmen will be trained in the biology of pest insects and management techniques through the use of short courses, grower meetings, field demonstrations, extension publications and the mass media.

- Cultural control and treatment thresholds will be demonstrated and refined through on-farm demonstrations (with a target of four). Special attention will be given to the green peach aphid and to minor pests.

- Assistance and leadership will continue to be given to already established pest management programs involving flue-cured tobacco.

- The possibility of using existing IPM programs to gather data useful in clarifying pest biology, making insect loss estimates and developing cultural control will be investigated with entomology researchers.

Production and protection practices and, to a lesser extent, insect problems encountered differ between burley and flue-cured tobacco production. Yet almost all pest control practices in use in the burley area were developed for flue-cured tobacco. On-farm tests will be used to identify unique pest problems and to develop and demonstrate effective control measures. Support materials will be developed for burley producers, and pest management programs suited to the needs of burley tobacco production will be developed.

Insect Identification

The identification of arthropod (and other) samples submitted to Entomology Extension and to the Plant Disease and Insect Clinic is the primary problem. The primary objective is the prompt and accurate identification of these samples. Constant practice on the job, forays into the taxonomy of new groups not previously tackled and work with problem groups in the NCSU Insect Collection during the winter will increase the speed and reliability of identifications.

Expected results include (1) additions to the state faunal lists, (2) the furthered knowledge of distributions and hosts of arthropods (and others) in North Carolina, (3) enhancement of the Insect Collection (Research, Teaching and Extension) by specimens submitted, (4) increased abilities of agents to make their own identification of common pests and (5) reduction in pesticide use.

Corn, Small Grains, Soybeans (Coastal Plain)

The long-term and general objectives previously established are (1) to develop management programs, (2) to develop and implement multicrop IPM programs and (3) to train, assist and support county personnel and programs

with respect to soybeans and feed grains and to the northeastern portion of the state. Special emphasis is given to entomological problems of organic soils.

In 1979 the state's soybean crop was severely attacked by several insects, mostly corn earworms. Loss of income due to yield loss and control costs exceeded $7 million. Work areas in soybean entomology are (1) refining the corn earworm management program with special emphasis directed to understanding the establishment of this pest on soybeans, (2) developing scouting techniques and thresholds on narrow-row soybeans and (3) determining the disruption and control potential of newly registered insecticides.

Corn continues to be infested with numerous pest insects. Major effort will be directed to (1) further refining the billbug management program, particularly in regard to survey and control, (2) elucidating agrichemical interactions, (3) evaluating losses to and control of European corn borers and (4) gaining knowledge regarding potential entomological problems and control tactics of no-till corn.

Effort in IPM will be directed to (1) continuing to investigate and develop new services to be rendered by IPM service projects, (2) helping further establish several existing projects (Chowan, Perquimans, Pasquotank Counties; Jones County; Northampton County and Brunswick County) and (3) cooperating with the newly hired pest management coordinator.

PLANT PATHOLOGY

The annual losses from diseases on turf that include replacement value, cost of pesticides, additional labor and equipment are estimated to be over $30 million per year in North Carolina.

Diseases caused by species of Rhizoctonia, Sclerotinia, Phythium, Helminthosporium and other fungi are important on turfgrasses throughout North Carolina. Nematodes are a problem on turfgrasses, especially in eastern and southern North Carolina in sandy soils. The cause of spring dead spot of bermudagrass and centipede decline are not known but these diseases have been severe in recent years. Recently, ophiobolus patch and southern blight are two new diseases that have been identified in western North Carolina for which a control is not known.

Effective and economical disease control practices are available for most of the diseases caused by fungi that occur frequently on golf courses. Economical control methods are not available for most of the diseases that occur in home lawns and lower maintained turf area. Proper maintenance and the selection of proper types of turfgrasses for particular uses can be used to manage many diseases in lawns. Nematodes are often a problem on turfgrasses, but chemicals that can be used to control nematodes on golf courses and sod are not labelled for use in home lawns.

Vegetable production is an important source of income for low-income farmers in the mountain counties of western North Carolina, generating approximately $30 million at the farm. Trellised tomatoes have a number of serious disease problems, including Verticillium wilt, early blight and various bacterial diseases. Snap and pole bean yields are reduced by root rots and viruses. Cabbage is affected by black rot, and cucurbits and peppers by virus diseases. It is estimated that disease problems reduce vegetable yields by at least 25 percent annually.

Research and on-farm tests have demonstrated the benefits of integrating both fumigation and resistant varieties for tomato Verticillium wilt control. However, fumigation is expensive and should be based on need as determined by soil assays for the disease organism. A pilot project to establish a system for determining need based on soil assays is being developed.

A pilot pest alert system for trellised tomatoes and research on the timing of insecticides and fungicides based on monitoring pest populations and environmental conditions have provided the basis for a sound tomato IPM program. Efforts will now be made toward implementation by working with county Extension IPM programs and grower groups such as the N. C. Trellised Tomato Growers Association. Dissemination of pest alert information via Extension Teletip will be continued.

Considerable effort will be expended in analyzing results from past tests on vegetable disease control and preparing this information for publication.

Diseases, particularly root diseases, are causing excessive losses in many nurseries as well as in the landscape. Phytophthora die back of hybrid rhododendron and black root rot are two diseases of increasing importance and

will be receiving more attention in both research and extension programs. A disease survey in woody ornamental nurseries is needed to determine crop loss data.

The Plant Disease and Insect Clinic continues to receive more specimens each year. This places an ever-increasing work load on the Clinic personnel.

Diseases continue to be one of the major limiting factors in small fruit production in North Carolina. Careful inspection and spraying with Difolatan has practically eliminated anthracnose from strawberry fields in North Carolina. Red stele is now the most important disease. Fruit rots are the most important disease problems on grapes. French hybrid grapes for home wine production are becoming more widely planted. Some varieties are very susceptible to diseases under North Carolina conditions. Growers will have to select varieties carefully and follow a regular fungicide spray program.

A lengthy period of cool, wet weather during the spring of 1979 made conditions very conducive for apple scab infection and development. These conditions caught many growers using very lax control procedures; as a result 20-25 percent of the fruit was affected by scab. Much emphasis was placed on this disease and its control in discussions at the state apple meeting and the winter apple schools. As a result of growers being more efficient with their control program and a drier spring, apple scab is not a problem this year except in localized orchards. This illustrates that agents and growers need to be better educated about diseases, conditions for their development, and control. This can be done through agent training sessions, more effective training sessions and discussions at winter apple schools, and frequent reminders and updated recommendations to agents through newsletters. These objectives could also be obtained through the use of an effectively implemented Apple Management Advisory Service (AMAS).

The peach tree short life complex and root knot nematodes still pose a serious threat to the expanding peach industry in North Carolina, particularly since the loss of the post plant nematicide DBCP. Alternatives to DBCP are being explored, but this is a lengthy, time-consuming process. In the meantime, growers need to be made aware of using good, effective preplant treatments (no post plant treatments are available), combined with good orchard management and cultural practices.

In Lincoln and Cleveland Counties the virus disease, peach stem pitting, is a problem in approximately 100 acres of peaches. Control procedures developed in other states where this disease is a problem will be tested for use in North Carolina.

The high risk of disease has hindered the growth of vegetable production in North Carolina. Losses due to diseases in 1979 were tentatively estimated at $40 million. This loss value does not include crops that are not grown because of disease pressure.

The Extension Service must continue to develop control programs and conduct educational programs for county agents and growers to reduce these

losses: (1) develop "disease control systems" (IPM) for potato, cucumber, cantaloupe, pepper, processing tomato, and greenhouse vegetables, (2) encourage and train agents to develop diagnostic skills and resources, (3) obtain registrations for needed fungicides and nematicides, and (4) train agents in pest management.

Based on tests and surveys, an estimated 13.5 percent of the soybean crop was lost to several diseases. Nematodes accounted for 55-60 percent of the loss. The soybean cyst nematode caused greater losses in 1979 than in previous years. It has been recovered from several areas and two counties where it was not previously recorded. In addition, there has been a major shift in races, with race 2 becoming more prevalent. This shift is occurring primarily in fields planted continuously in soybean cyst nematode resistant varieties.

Actual financial losses are complicated by the fact that many growers apply pesticides for disease control that are not needed. About 100,000 acres of soybeans were sprayed with foliar fungicides. This practice probably resulted in a net loss to the grower because the yield increases in about 50 tests conducted on private farms and research stations were not sufficient to cover cost of application. Nematicides are also being overused. Ineffective materials and/or sublethal doses of nematicides are widely used. They are also used in fields with no problems.

The 19 diseases that attack flue-cured tobacco reduced production efficiency.

Aflatoxins were again a serious problem in North Carolina and caused serious animal health problems, particularly with swine. Although it is estimated that 5 percent of the corn contained more than 100 ppb aflatoxins in 1979, all of that corn was not destroyed. The 1980 corn crop has been hurt by the hot, ry weather and will probably be heavily contaminated with aflatoxins.

Approximately one-third of the corn acreage is damaged by nematodes and even though many growers treat with a nematicide, they do not properly incorporate the material.

Viruses continue to be the primary disease problem of corn in the Piedmont area. Growers must use a resistant variety f they are producing corn close to Johnson grass. It is necessary to rate the commercial hybrids to assure the growers have information available on the resistance to both maize chlorotic dwarf virus and maize dwarf mosaic virus.

Leaf blights (Northern and southern corn leaf blight), anthracnose, stalk rots and barren stalk continue to be damaging to the corn crop.

Youth and 4-H members in North Carolina (rural, suburban, and urban) should become aware of the social and economic impact plant diseases have on them and on the well being of the community.

Objectives

On-farm tests will be conducted to demonstrate the importance of proper nematode control to corn producers. Several growers' meetings will be held to discuss the importance of proper nematode control. Publications will also be updated where appropriate.

Publications on aflatoxins will be prepared and updated where appropriate. Several growers' meetings will be held to discuss aflatoxins. Some demonstrations will be conducted on aflatoxins in an effort to keep the contamination to a minimum.

On-farm tests will be conducted to rate commercial corn hybrids for virus tolerance. This information will be published and made available to the corn producer.

In-service-training tours will be conducted for corn agents during the summer of 1981 in an effort to keep them current on disease control practices as well as other production practices.

The objectives of the Plant Pathology Extension Program on Turfgrasses will be to identify diseases of turfgrasses, suggest or develop appropriate control methods, and to provide information to county agents, homeowners and turf managers on diseases. These objectives will be accomplished by identifying diseases on samples submitted to the Plant Disease Clinic and by examining problem areas with county agents and turf managers. Information about turf diseases and control methods will be given at county meetings, turfgrass association meetings, agent training sessions, in publications, and by personal contacts.

Fungicides will be evaluated for the control of spring dead spot on bermudagrass fairways and greens at Wilson, Goldsboro, Raleigh and Whiteville. Benomyl and other fungicides will be applied at high rates in October or November to areas where the disease occurred the previous spring. A state label for the use of benomyl to control spring dead spot will be requested in 1981. Nematicides will be evaluated for the control of sting nematodes and other nematodes on bermudagrass at Atlantic Beach and Fayetteville, on centipede grass at Rockingham and Fayetteville, and bentgrass at Raleigh. Experiments using fungicides, nematicides and fertilizers will be established on centipedegrass with centipede decline in Fayetteville to try to develop a control method and to indicate the cause of this problem.

There are two primary objectives in the Extension Plant Pathology program in western North Carolina, including 1) developing disease control strategies and 2) working toward having these strategies adopted on the farm. Specifically, strategies for tomato Verticillium wilt control, tomato early blight, cabbage black rot and bean root rot have been devised or are being refined. Implementation of these strategies is being accomplished through educational programs, including: grower production meetings, tours, agent training workshops and on-farm demonstrations. In addition, an IPM program for tomatoes will be further developed and refined. Expected results include: 1) improved control of tomato Verticillium wilt through use of fumigation and resistant varieties should increase yields and thus farm income, 2) improvements in fungicide

recommendations for early blight control should increase efficiency of production, 3) better controls for bean root rot and cabbage black leg should also increase yields and farm income, and 4) implementation of the tomato IPM program should reduce pesticide usage as well as improve pest control.

Expected Results

Grower acceptance and use of the System Plan of disease control or a total pest management program involving diseases, insect, weed and other pests should reduce both control costs and disease losses, but more important, result in an annual increased net profit of $10 to $15 million.

The appearance of plant bed and field blue mold in tobacco as well as the changing methods of disease control and production will require additional effort to keep extension agents informed regarding new materials, correct methods of application and how to go about the job of selecting suitable control systems.

Chemical soil and foliage treatment is an effective method of disease control for flue-cured and Burley tobacco and use will most likely increase due to chance of reoccurrence of blue mold, development of more effective control methods and use of control systems that permit continuous tobacco culture. An extensive educational program on proper application and safe use should result in more effective control and less chance of injury to growers and others.

Short-run results expected will include the identification of disease and nematode problems on turfgrasses. County agents, golf course superintendents, and other turf managers will be better able to recognize the most common diseases of turfgrasses and to select proper chemicals and management practices to control these diseases. Long-run results will be to evaluate new chemicals for the control of diseases and nematodes on turfgrasses and to develop control methods for spring dead spot of bermudagrass, centipede decline and nematodes in home lawns.

Corn producers will be more aware of nematode damage, aflatoxins, viruses and leaf blights and that damage due to these diseases will be reduced. Some IPM programs will be initiated on corn at the county level and aflatoxins and nematodes will be part of the programs.

Unique and Innovative Approaches

Dr. L. T. Lucas will be the Chairman of the Program Committee for the N. C. Turfgrass Conference and will try to arrange a program that deals with current problems of all types of turfgrass managers from golf course superintendents to home owners. He will serve as co-editor of a proceedings from this conference that will be distributed to all persons attending the conference and to all county agent offices. An in-service-training session is planned for county agents with ornamentals and turf responsibilities in 1981.

The mailing lists of all turf related groups have been placed in a computer and can be selected into various types of groups for printouts and mailing labels. The mailing list will be updated and expanded to include managers of athletic fields and recreation facilities.

B. Program Component II - Livestock Production

ANIMAL HUSBANDRY

The major thrust of the Animal Husbandry Extension's work will be to continue stimulating the development of sound profit-oriented purebred and commercial, beef, horse and sheep programs. An aggressive 4-H program to supplement each will also be maintained.

Major emphasis will be on agent training in the utilization of forage crops and crop residues. Additional emphasis will be on increasing the weaned calving percentage, weaning weights, number of light calves kept for stockers and the number of calves marketed through organized special sales.

An active 4-H program directed toward assisting in the total development of our youth through involvement in meat animals, horses and related projects will be maintained. The efforts in these areas will be personal growth and development of the 4-H members through experiences in feeding, management, fitting, showing, judging, meat selection, cookery, horse shows, public speaking and demonstrations.

Beef

An increased supply of pork and chicken along with high interest on money and increasing unemployment have caused some uncertainty in the price structure in the cattle industry during the past year. However, the long-range outlook for beef is bright.

The efficiency and profitability of beef cattle could be increased with the implementation of improved feeding programs. Many problems arise that are directly or indirectly related to nutritional programs, including: (1) the interaction of feeding programs, lactation and reproductive performance, (2) failure of producers to plan management and feeding systems that will maximize profitability, (3) effect of long-term animal or industrial waste feeding on animal performance and health, and (4) capability of some livestock agents to advise farmers regarding nutritional management.

Many immediate beneficial results could be realized with improved management of beef cattle. Immediate responses revolve around the adoption of performance testing, feeding balanced rations based on feed analysis, adopting a defined calving season and marketing through special sales. For instance, a North Carolina producer who selects his breeding animals on above average performance records, castrates, dehorns, implants, worms and degrubs his cattle, feeds a balanced ration and sells his cattle on the state graded sales can potentially produce a stocker steer worth as much as $180 more per head (based on 75-cent stockers) than the producer who does not use these practices. In the long run, these recommended practices when adopted will result in more efficient use of production resources such as land, forage, grain and capital.

The use of on-farm demonstrations with specialists working closely with agents is a very effective method of educati agents and beef producers. Some of these are listed below:

- On-farm cattle improvement program herds.
- Central bull testing stations.
- Growth implants and internal parasite control demonstrations.
- Fly control demonstrations.
- Systems for profitably using various waste products (poultry manure, crop residues, vegetable wastes) as beef cattle feeds.
- Protein supplementation of silage rations for cattle.
- Stocker feeding trials.
- Marketing cattle through organized feeder sales.
- Processing feeder cattle sales records on mini-computers to save time and reduce stress on cattle.
- All-practice beef cattle forage demonstrations.
- All-practice total stocker cattle management demonstration.

Emphasis will be placed in agent training on a total herd health approach to beef cattle management schemes. Included in this approach will be a strong emphasis on the reproductive aspects of a herd health program, including establishment of a 60-day breeding season, pregnancy examinations of the breeding herd and breeding soundness examination of bulls.

More emphasis will be placed on training new agents in the first six months after they take a position in the county. A regular new agent training program will be initiated to orient all new agents with the state specialist personnel and the programs in beef. The in-service training will emphasize not only the animal performance aspect of feeding, breeding and management systems, but also the economic implications. Special efforts will be made to involve individual agents in conducting educational meetings by having them prepare for and participate in the programs. Continued effort will be directed toward publication of materials for the cow-calf handbook and development of audio-visual material related to beef cattle management, feeding and breeding.

Continued emphasis with increased intensity will be given to all phases of youth work. The 4-H meat animal programs will be a part of all in-service agent training stressing the value for training future industry leaders and public appreciation for the beef industry.

Horses

The economic conditions and energy supply continue to take their toll in the horse numbers but have not slowed the interest and enthusiasm of young 4-H girls and boys in horses. Many horsemen are continuing to experience nutritional problems related to compromises being made in economizing their feed costs. Due to these problems, special efforts will be directed to make the horsemen aware of the specific nutrient requirements and their relationships to reproductive problems of horses. Alternate feeding programs to meet these requirements will be stressed. More emphasis will be made on having feeds tested and then supplemented according to the animal's needs.

Parasites remain the number one health problem. Many new drugs are on the market which do an excellent job and allow horsemen to worm their own horses safely and economically on the farm. Educational efforts will be directed toward teaching the value of a sound parasite control program following recommended procedures.

In the 4-H youth work, horse activities which do not require horses (Horse Bowl, Public Speaking, Demonstrations and Judging) will be stressed this year. More counties will be encouraged to participate. Many areas of the state are increasing the formal 4-H recreational use of the horse by conducting pleasure trail rides and camping trips. This program will be expanded and promoted throughout the state since energy prices are reducing show participation. A club member with a low-priced horse may compete and enjoy these projects.

Sheep

For the first time in more than ten years, the interest in sheep has turned around. This fact was substantiated by the increase in wool marketed through the state wool pools this spring. With strong prices for both lambs and wool, the demand for breeding ewes is increasing. This interest will be cultivated with more emphasis on feeding and management of small farm flocks. Sound management and feeding practices will be stressed with emphasis on early lambs and a high percentage lamb crop. The advantages of proper marketing of lambs and wool through cooperative pools will continue to be stressed.

A strong educational effort will be made to assist agents in planning for and conducting area sheep conferences throughout the sheep producing areas of the state.

Four-H lamb projects will be encouraged, and 4-H sheep shearing schools will be used to train sheep shearers for the industry.

DAIRY HUSBANDRY

Grade A milk purchases from producers by North Carolina distributors during 1979 were 1,387,062,000 pounds, plus 0.8 percent or 11,667,000 pounds above 1978. However, milk production in North Carolina during May 1980 was estimated at 141 million pounds, up 4 percent from the same month a year earlier. The number of milk cows on Tarheel farms was estimated at 140,000 head, 2,000 less than a year ago. The milk production per cow at 1,010 pounds was up 60 pounds from May 1979.

Sales of fluid milk and cream to consumers by North Carolina distributors totaled 1,115,069,000 pounds in 1979, a decrease of one-tenth percent from 1978.

The number of producers continued to decline steadily throughout the year and into the first half of 1980. In April 1980, there were 1,286 grade A producers in the state. Forty-one dairymen went out of business in 1979. However, we did have quite a few new producers go into the dairy business during the past year.

Dairymen received an average price of $12.84 for their milk in 1979 and the gross income to North Carolina grade A dairy farmers was $189,000,000.

The increase in the Class I price of milk to $14.93 per hundredweight effective July 1, 1980, will encourage producers to stay in business and will increase interest among farmers considering going into the business.

Educational programs in dairy production will put major emphasis on herd management practices that will eliminate losses for dairy farmers. Feed continues to be a major cost item for milk production. Feed costs (purchased feed and crop expense) averaged 35.9 percent of the total milk production cost or 50.4 percent of total operating expense for selected dairymen on the N. C. State University Electronic Farm Business Records Program. These records indicate that feed cost per hundredweight of milk produced is directly related to profitability. Feed costs may be high due to: 1) low production unrelated to nutrition; 2) nutritional problems, such as underfeeding, overfeeding or feeding an unbalanced ration; 3) using unnecessarily expensive feed ingredients; 4) feed wastage; or 5) other problems.

Underfeeding results in high feed costs since the value of unrealized milk production is greater than the savings from lower feed use. Overfeeding results in high feed costs since the response in production is worth less than the cost of the additional feed. Extreme overfeeding can decrease production and result in health problems (fat cow syndrome or nutrient toxicity).

Extension will work to correct feeding insufficiencies. The main educational thrust will concern: 1) feeding for high levels of production; 2) feeding for maximum profit; 3) feeding a balanced ration based on feed analysis; 4) feeding the lowest cost balanced ration which is of high quality, palatable and supports normal health and milk quality; and 5) using proper methods of feed harvesting, storage and handling which makes maximum use of available resources.

Emphasis will be placed on ration balancing based on forage testing. A cooperative program for feed testing involving N. C. State University and N. C. Department of Agriculture is planned to begin this year.

The Dairy Herd Improvement Association (DHIA) offers a computer service for balancing least cost rations. This DHIA Dairy Cattle Feed Formulation System will continue to be offered to dairymen on a request on pay basis through county agents and DHIA supervisors. The value of ration balancing based on feed analysis will be evaluated in North Carolina from a field study now in progress.

Since feed is a major expense item and its improper use may be a primary factor limiting efficiency, information provided through Extension should serve as a basis for improved production and profit. The potential exists for an average of $55 or more increased profits per cow through ration balancing based on feed analysis.

The foundation of the educational program relating to mastitis control has for several years been the DHI mastitis somatic cell count program. This program has and will continue to be of great value to those producers who are enrolled in the program. During June of 1980, 413 herds (36,100 cows) were tested. A modest 5 percent reduction (from 24 percent to 19 percent) in the number of cows with counts in excess of 400,000 cells per milliliter for the 413 herds on the program will result in approximately a $130,000 increase in net income. In addition, it is projected that 30 additional herds will take advantage of the program during the year.

In an effort to increase the shelf-life of dairy products, processors have been forced to develop and adopt more effective milk quality tests than the currently used "standard plate count." Since producers are not familiar with these tests, a continued educational effort will be necessary to assist producers in understanding and meeting these standards.

During the past two years, we have emphasized that more stringent requirements pertaining to antibiotic residues in milk would become effective July 1, 1980, with the implementation of the new grade A pasteurized milk ordinance. During the year we will continue to emphasize this area at milking management meetings and in published materials.

As electrical energy becomes more expensive and new pricing systems are developed, it is necessary to find ways to conserve energy and alter both the time of day and load factor usage on dairy farms. During the year, in cooperation with Carolina Power and Light Company, meters will be installed at the new dairy facility at University Research Farm #2 and electrical usage by function and time of day recorded. This information will be used to supplement current recommendations for energy conservation in the milking parlor.

As our dairy herds increase in size, major remodeling or new parlor construction becomes a necessity in many instances. Sound financing requires that the parlor investment (primarily determined by parlor size and degree of automation) be compatible with the planned herd size. Continued emphasis will be directed at this area at milking management meetings and in publications.

The field trial initiated last year comparing cows treated with an Anthelmintic (Thibinzole) at drying off and at calving will be continued this year. Data are being collected in nine herds where two of the following three treatments are being used within each herd: (a) treat cows at drying off, (b) treat cows at calving, and (c) treat cows at drying off and at calving. The objectives are: (a) to determine if there are differences in milk production, length of lactation and culling rate between treatments, and (b) compare relationship of treatments to reproduction, nutrition and management. At the completion of each cow's lactation, milk production and other pertinent data will be transferred from monthly DHI reports to IBM cards, then summaries will be completed and the results and recommendations will be made known to county agents and dairymen.

Recent survey information suggests that calf losses in N. C. dairy herds approach 20 percent of the potential calf crop. Each heifer calf that dies represents approximately $200 loss to dairymen. This constitutes a substantial and unnecessary financial drain on the dairy industry. The main thrust of Extension Dairy Husbandry programs in herd replacements will be toward reducing this loss to less than 5 percent.

Emphasis will be given to the N. C. Dairy Heifer Calf Program. The need for special emphasis on the N. C. Dairy Heifer Calf Program arises because of two problems. These are: 1) calf losses are excessive in most herds and in some more than 50 percent per year; and 2) to purchase herd replacements (bred heifers) requires an outlay of over $1,300 per head.

Average age at calving in DHI herds exceeds 28 months and could easily be reduced by one month through improved feeding and management. This reduction in age at calving will be an objective during the coming year and would result in cost saving to N. C. dairymen of approximately $800,000 to $850,000.

Although it is generally acknowledged that adequate records are essential for dairy herd production efficiency, more than one-third of the grade A dairy farms in North Carolina have no organized system of herd management records. The N. C. Dairy Herd Improvement Association, Inc. (NCDHIA) offers a variety of herd management record plans--one or another of which will fit the circumstances of nearly any dairy farm. There is a need to convince many additional dairymen of the value of herd management records and to teach them how to select a record system which fits their circumstances. The dairymen who enroll on a record plan will need to be shown how to use the records to the best advantage to improve efficiency of production.

Many dairymen already on the DHI record plans are not using the information provided to the best advantage as is shown by the comparatively low production achieved by some DHI herds. Dairymen on DHI with low herd averages need assistance in interpreting and using their records to improve efficiency. The state DHI fieldmen need additional training in procedures for certifying flow meters, evaluating milk fat test problems and interpretation of the management information provided to dairymen. The increasing cost of energy necessitates using all possible energy saving practices. Further study is urgently needed to evaluate the usefulness of the AM-PM record system for herd management purposes. The increasing size of herds, speed of milking and number of herds milking three times per day is increasing the complexity of

supervisor scheduling to provide record service. The system of fees charged for DHI record service and the compensation system for supervisors both need re-evaluation.

The objectives of the DHI Project are:

- Complete the re-organization of the DHI testing laboratory.
- Maintain or improve the organization of responsibilities and flow of work among the state DHI employees.
- Increase the percentage of grade A herds in the state enrolled on DHI from 54 percent to 60 percent.
- Prepare a training manual for DHI supervisors on the computerized billing system.

Major emphasis of the Dairy Records Processing Center will be placed on a teleprocessing pilot project for large herd access to DHI information. About 10 to 15 herds from throughout the region will be involved.

Major changes in the DHI records will be completed in November or December 1980. This will include:

- Incorporation of protein test results.
- Revised Cow Pages for inclusion of test day data on milk yield, fat percent, protein percent and somatic cell count.
- Revised Herd Summary with improved summary values for reproductive efficiency, mastitis efficiency summary, stage of lactation profile and average sire and service sire USDA predicted differences.
- Revised Calf Pages.

The objectives for the Genetic Improvement of Dairy Cattle Project are:

- Improve the average genetic merit of AI sires used by dairymen.
- Improve the average genetic merit of bulls used for natural service. An average increase in the USDA PD values for proven sires and the pedigree index breeding values for unproven sires of 100 pounds of milk would increase the net income for grade A dairymen by nearly $1,000,000.

With the trend to larger herd size, increased interest in dairy farming, approximately 225 dairymen will be making adjustments in existing facilities and constructing new facilities this coming year. Labor saving systems will be encouraged. Free-stall milking parlor systems with drive-through fence-line feeding can be economical and labor saving for large herds. In many cases, dairymen have reduced their labor by one man by using this type of free-stall housing system which means a saving of $12,000 to $16,000 per year.

With the increased interest in the dairy business, and the fact that some of these proposed dairy operations have little chance of generating the cash flow needed to service borrowed capital, emphasis will be placed during the year on a series of debt management seminars for county agents, dairymen and lenders' organizations. Housing systems for dairy cattle relative to efficiency, cost and debt load for various size herds will be discussed. The seminars will be organized and conducted with the Extension Economists and Agricultural Engineering Specialists.

Planning for economical and suitable dairy waste disposal systems will be provided to producers as well as research data on waste management. Emphasis will be placed this year on workable waste handling and pollution abatement systems on producer farms in various areas of the state which can be demonstrated to surrounding producers. Many dairymen have voluntarily built or improved waste handling and storage facilities and have constructed retention ponds or lagoons for collecting wastewater and feedlot runoff rather than discharging to a stream. During the year approximately 275 additional dairymen will be improving or installing a suitable waste disposal system. Attempts will be made within the year to establish one or more demonstration wastewater irrigation systems in Western North Carolina.

During 1980-81, time is planned to assist eastern dairymen in making an analysis of their management program in order to identify problem areas and plan corrective measures. Problem areas which are common to many herds can be emphasized in area educational meetings. During the past year, the dairymen of the area participated well in area seminars and these efforts will be continued in 1980-81. Extension agents in the area have worked well in support of the area approach to Extension work in dairy husbandry.

During the coming year, special emphasis will be placed on the area of milking procedures and mastitis control. Attempts will be made to involve both owners and hired labor in workshops on these topics. A 10 percent reduction in mastitis infection rate in the 70 herds involved in the eastern North Carolina project can mean $1,000 additional milk income per herd annually, or $70,000 for the area. A 10 percent reduction can easily be obtained by the application of only modest corrective procedures.

Participation in the 4-H Dairy Program continued at a high level in 1979. Statistics reported by county Extension workers indicated a large increase in the area of 4-H dairy tours. Participation in the Dairy Poster Contest was down slightly from 1978. The total estimated participation figure was well over 2,000.

Emphasis will continue in the area of production principles involved in the 4-H Dairy Program. Additional emphasis will be given to involving subject matter agents with 4-H projects and activities in order to maintain the level of subject matter instruction. Additionally, more emphasis will be given to the involvement of trained adult 4-H leaders and older 4-H members as junior leaders.

SWINE HUSBANDRY

Fiscal year 1979-80 has been a financial disaster for pork producers. Supply of pork products has exceeded demand and producers have been losing as much as $20 per market hog. Feeder pig producers have also been hard hit with losses of $10 to $12 per pig marketed. The price of feed has been gradually increasing which has applied additional pressure on attempts to remain in the business. It has been an especially tough year for new producers. Those that started in 1979 have not had a profitable sale of pigs through June 1980. The extreme heat and dry weather in the summer of 1980 will have an effect on profitability during the remainder of this year and on through 1981.

Areas of major concern and program emphasis are as follows:

1. Feed quality and efficiency of converting feed into red meat. The presence of mycotoxins, especially aflatoxin, appears to be a growing problem in North Carolina. A major effort will be made to monitor feed and grain samples from hog farms to gather a data base for a statewide educational program. Also on-farm feed processing is being poorly managed in many instances resulting in imbalanced rations. Feed analysis will receive special attention.

2. Alternate grain sources. The use of grains other than corn will be encouraged. Recognizing that corn is the feed grain that is the standard for the industry, it is also apparent that many areas of North Carolina cannot economically produce corn. Small grain production double-cropped with sorghum offers an alternative in many areas to inefficient corn production. High protein oats can be used very satisfactorily in sow and young pig diets.

3. Herd health. There are several areas of herd health that deserve special attention. The impact of these diseases in combination are creating special problems in production units. For example, the pressure of aflatoxin depresses the natural immune system of hogs resulting in increased susceptibility to diseases, especially respiratory problems such as atrophic rhinitis and mycoplasma pneumonia. Eperythrozoonosis (Epi) is a viral disease that affects reproductive performance. This disease can be spread by blood sucking parasites such as lice as well as by instruments used in routine management practices. Internal parasites also cause problems to major organs and functions that result in poor performance. New anthelmintics are becoming available which will require renewed educational efforts in parasite control.

4. Record keeping. As electronic data processing becomes a reality, the opportunity for improved record keeping looms increasingly important. This area could very well be the greatest opportunity for improving net income to the producer. Even though many producers keep excellent records, very seldom do these records become a part of the decision-making process. The inability to summarize the information and put it in a form that is easily accessible results in poor use of the data.

5. Reproductive efficiency. The number of pigs marketed per sow per year is greatly below the potential. There are many contributing factors, such as inadequate nutrition, poor environment, hot weather stress and poor pig survival due to inadequate management. Data is continuing to be collected in attempt to understand the reproductive failure related to non-cycling and non-fertile females.

6. Swine evaluation. The very high price of feed should create a new emphasis on selection of breeding stock that has the genetic potential for converting feed into red meat most efficiently. The central testing and on-farm testing will be strengthened to emphasize this capability.

7. Planning new facilities. The simplest method of preventing many production problems is to do a good job in planning a facility -- layout and design. This includes the waste management program which is the first question a potential producer must be able to answer satisfactorily -- can you handle the waste generated in a production unit?

8. Energy conservation. Much of the supplemental energy used in pork production is in the young pig phase. Efforts will be made to use animal heat as well as concentration of supplemental heat in the young pig area.

9. The Swine Development Center. This unit will continue to be a focal point of the total program concept for Extension Swine Husbandry. Efforts are on-going to keep the program current and relevant -- to demonstrate new ideas and concepts for efficient pork production.

POULTRY SCIENCE

Most of the poultry industry has been in a loss situation from July 1979 through June 1980. The anticipated oversupply of eggs, broilers, and turkeys developed and first quarter 1980 prices were 8.3 cents per dozen, 4.5 cents per pound, and 8.5 cents per pound below 1979 for eggs, broilers and turkeys, respectively. Inflation and interest rates were setting new records and imposing additional economic pressure on the poultry industry. Curtailed shipment of export grain commitments has held feed prices at near year earlier levels.

Ajustment of production is in progress. Placement of broiler-breeder pullets was 15 percent below 1979 during March-May 1980 and earlier marketing of breeder flocks, and extremely hot weather in the southwest is reducing the oversupply of hatching eggs. Broiler placements are down about 3 percent from 1979 in recent weeks and the May poult hatch was 4 percent below the year earlier level. The May laying flock was 2 percent below 1979 with egg production 1.5 percent below last year.

A major snow and ice storm caused about 200 poultry houses to fail. Bird losses were modest compared to building losses.

As usually happens, some good results with the bad. Poultry firms have been critically examining their production programs, product mix, and business management methods to reduce costs. Some have been successful. All have become acutely aware that greater efficiency is essential for survival.

Poultry Extension has new poultry house plans that are being used by the major lending institutions as the basic plan to qualify for new house loans.

The major areas of program emphasis in which we feel that our efforts would be most beneficial in the 1980-81 program year are:

- Disease and parasite prevention and control.
- Waste utilization.
- Equipment and house maintenance.
- Housing and energy conservation.
- Understanding the structure of the industry; the contribution of each segment as well as the responsibility of each segment.
- Production efficiency.
- Minimizing the effect of aflatoxin.

Our major efforts will be directed toward aiding Extension agents, poultrymen and business firms to make maximum use of their resources in these areas.

Probably the most under-utilized resource in the poultry industry is a by-product -- manure. Calculated production (dry weight) in North Carolina is 1,584,150 tons. After allowing for nutrient loss in handling and storing, and using the median value from analysis for nutrient content, this poultry industry by-product contains: 40,475 tons of nitrogen, 37,397 tons of phosphorus, and 34,427 tons of potassium to say nothing of the calcium and other trace minerals. Using a wholesale value of 25 cents per pound for N, 23 cents

per pound for P; and 12 cents per pound for K, this is worth $45,701,680. This represents a substantial saving in fertilizer were it to be fully utilized. For example, the nitrogen would provide 200 pounds of nitrogen per acre for 404,750 acres of corn. Farmers will be encouraged to take full advantage of this valuable product.

New poultry houses are energy efficient; however, older houses may not be. Growers will be encouraged to convert, by means of additional insulation and repair, to more energy efficient houses.

One main business management thrust in the next program year will be in the area of house and equipment maintenance. Extending the useful life of equipment by three years through proper care and maintenance can reduce operating costs by $9,000 per 20,000-bird broiler house.

Another business management area of emphasis will be in the area of enterprise analysis. Potential producers will be aided in evaluating the effect of poultry on an existing farm enterprise. Most of this effort will be in the broiler area of north central North Carolina. Much interest in building in that area is in response to Perdue Foods' announced plans to construct a new broiler complex in the Warren County area.

The increased interest in growing game birds for shooting preserves and for food purposes since the restrictions on sales have been eased indicates a need for expanded efforts in providing technical material for present and future producers. At present, three processors are dressing and packaging birds for the wholesale and retail market. Over 900 permits to raise game birds have been issued by the N. C. Wildlife Commission. In addition, there are over 40 shooting preserves licensed.

Fuel energy cost for producing market turkeys has increased three-fold during the past two to three years. Current average fuel cost for brooding 0 to 7 weeks is 16 to 18 cents per head, with cold season cost approaching 25 cents per head. This adds 1.0 cents per pound to the total cost of producing market turkeys. However, using fuel energy as a means of moderating environmental temperature is far more economical than maintaining body temperature through increased consumption of feed energy. For example, extended exposure to extremely cold environmental temperatures can reduce feed efficiency by 50 to 75 points. This means an increase in feed consumption of 12 to 18 pounds per market turkey or an increased feed cost of $.96 to $1.44 per market turkey.

Most of the chicken producers have adopted some type of partial room brooding. Most turkey growers have not. Information will be provided to turkeymen on the technology involved and savings in brooding costs resulting from partial room brooding. They will be encouraged to adopt this practice. This practice could save 8 to 10 cents per turkey in fuel for brooding. This would save $1.9 million to $2.4 million per year or 3 or 4 million gallons of propane per year.

In an area related to energy conservation, much of the turkey housing in use in North Carolina is inadequately constructed to provide optimum environmental conditions for the turkey. Factors affected by housing design include

fuel energy cost, proper ventilation, litter condition, and lighting conditions, all of which can affect rate of mortality, incidence of disease, feed efficiency, and market weight. Adverse effects on these production parameters probably result in an economic loss of 1.0 to 2.0 cents per pound of live weight, or a total of $5 to $10 million annually by the N. C. turkey industry.

Poultry diseases continue to be a major economic factor to the poultry industry. As the industry becomes more concentrated and poultry are grown in greater numbers, the incidence and severity of disease can become a problem. With the proposed limitation of drugs in poultry feeds by the Food and Drug Administration, renewed emphasis will have to be placed on management, isolation, and sanitation to control poultry diseases.

The commercial pullet segment of the industry had a sharp rise in cost of producing pullets. This was due mainly to escalating housing and transportation costs. These factors were in part responsible for the layer numbers leveling off in North Carolina during 1980. The North Carolina Crop and Livestock Reporting Service reported 12.55 million layers on hand in April 1978, 13.05 million in April 1979, and 13.00 million in 1980.

The efficient use of energy remains critical to the production cost of commercial eggs and replacement pullets. New lighting programs and light types hold potential for saving electric costs. House design and construction also hold potential for energy conservation. As energy costs continue to increase, it becomes more critical that producers become energy conservation conscious if they are to remain cost-competitive with the rest of the egg industry.

Well over 85 percent of the commercial eggs and nearly all the commercial started pullets produced in North Carolina are either under contract or under ownership of integrated firms. The servicepersons who supervise the flocks for integrated firms have unique educational needs. The need for these clientele to keep up to date with new technology in areas such as management, housing, nutrition and communication is critical due to the competitive nature of poultry production.

As the trend for more contract egg and started pullet production has developed, the producer has been less receptive to traditional Extension methods. For example, in recent years less than 10 percent of the participants in the annual North Carolina Egg Industry Conference are farmer-producer. It is the thinking of some producers that since producers are under contract all technical information should come from the contractor. To some extent, in regard to technology of production, this is true; but a need for information in areas such as financial management, waste disposal, fly control, etc., exists. Consequently, methods used to disseminate information to this clientele need to be evaluated and improved.

Fly and manure disposal in layer and pullet production facilities are critical in highly populated areas and certain housing types. Identifying the potential problem situations and concentrating educational efforts to these clientele would be effective.

Mycotoxin problems have long plagued the poultry industry as well as other animal industries. The poultry industry is becoming increasingly aware of these mycotoxin problems. A field study has been initiated which will be continued into the coming year. It involves collecting feed samples from 24 poultry farms in the state on a weekly basis and will aid in formulating strategies for dealing with and preventing mycotoxin problems. In the short run, this study will provide needed data and focus attention on mycotoxins so that poultry firms are aware of the problems associated with mycotoxins. In the long run, it is hoped that this study will provide the information necessary to prevent mycotoxin problems in poultry.

In recent years, there have been a number of incidents where food has been contaminated with polychlorinated biphenyls (PCB's). This contamination has resulted from accidental spills, improper disposal and unintentional misuse of PCB containing materials and equipment. The poultry industry is not immune to this type of contamination. Contamination of poultry feeds or poultry products could cost the poultry industry millions of dollars. Although it may not be possible to completely prevent this type of contamination, it is possible to minimize the chances of accidental contamination. This can be done by: (1) identifying and eliminating, where possible, equipment containing PCB's and/or other possible sources of PCB's in the mill, (2) routinely monitoring feed ingredients for PCB contamination, (3) routinely inspecting for leaks all ingredient containing PCB's which cannot be eliminated, and (4) establishing written procedures for actions to be taken if a spill, breakage or contamination occurs. This program will help North Carolina poultry feed mills become more aware of the dangers associated with PCB and will provide a means of dealing with these dangers.

Energy, its utilization and conservation, may be the greatest challenge facing industry management today and in the years ahead. This is particularly true in the production of feeds. Since 70 to 75 percent of the cost of producing poultry products can be accounted for by feed, energy cost has a major effect on the production of poultry products. The American Feed Manufacturers' Association has outlined a program called "Energy Management for the Feed Industry" which can easily be adapted for use in poultry feed mills. North Carolina poultry feed mills will be encouraged to adopt this program.

The economic impact and the wide scope of the poultry industry in North Carolina makes it imperative that concerted efforts be made to acquaint our youth with career opportunities in the poultry industry or one of its related fields. Many young people do not realize the highly technical skills and training needed to function in this area; therefore, educational efforts should be provided to acquaint them. A number of science-oriented projects such as incubation, embryology, etc., have been developed for use by youth and are presently being used by many schools and 4-H members.

C. Program Component 3 - Business Management and Economics

D. Program Component 4 - Agricultural Marketing and Farm Supplies

ECONOMICS AND BUSINESS

Economics events in 1980 including double digit inflation and a recession have intensified the public's interest in economics because these events have had a marked effect upon individual life styles and the nation's standard of living. As a result, individuals have become increasingly concerned about their economic environment and how to function within it.

In the drive to increase efficiency, a continuum of new and expensive technology must be evaluated. This evaluation requires a thorough understanding and use of economic and financial principles if sound decisions are to be made. Developing the managerial capability of decision-makers within the agricultural sector, sufficient to operate in an increasingly complex business environment, continues to be a major challenge of the extension education program in Economics and Business.

In the marketing area, producers and processors of food and fiber have an opportunity to solve some of their marketing problems through individual or collective action. Many producers currently lack information about alternative marketing methods, how they operate and the potential benefits they offer.

Operators of marketing firms must be able to keep pace with the rapidly changing business world, constantly adjusting to the requirements of new technologies, changing demands, and increasing governmental rules and regulations in order to provide the vital services linking producers to consumers in the food and fiber industry.

Although North Carolina still maintains its rural character, the move back to the country has led to land-use problems in the urban fringes and in more outlying rural areas as well. In rural areas there is a special need for educational programs relating to the loss of prime farmland, the drainage of poorly drained soils, the threat of nuisance suits against producers and the passage of legislation fostering and requiring the development of land-use planning.

While public transportation facility budgets are being reduced because of reduced fuel consumption, roadways are deteriorating and railways are being abandoned. Transportation regulatory rules are changing and the freight rate structure has different regional effects. Agricultural users of transport need information with which to adjust to changes.

Many small towns and rural areas of the state are characterized by low incomes and inadequate employment opportunities. Responsible use of tax dollars requires that policy makers, other government officials as well as the general public understand the impact of economic growth on land-use and the costs of community services.

An informed public can more effectively participate in the formulation of economic policy if they have a better understanding of the structure of the nation's economy and its subsets and the effects various environmental, labor, tax, health and safety regulations have on the price of goods and services.

Today's youth are receiving more economics education than their parents but still lack a basic understanding and perspective of the free enterprise system. The quality of their personal financial decisions and their effectiveness as voters are dependent upon improved understanding of economic principles.

The Extension Economics and Business staff is committed to providing a comprehensive economics educational program in 1980-81 to the citizens of North Carolina. Major program emphasis will focus on:

- Assisting producers and agribusiness firms in evaluating new production techniques and inputs.
- Assisting individuals and groups in determining the feasibility of establishing new enterprises or agribusiness firms.
- Evaluating changes in tax laws, environmental and other governmental policies and regulations which affect producers, businesses and consumers.
- Training consumers, producers and agribusiness firm managers in decision-making techniques in order to improve their individual and collective welfare.
- Increasing the effectiveness of producer marketing.
- Improving the marketing and distribution system.
- Increasing consumer understanding of how the economic system functions and evaluating policies that determine consumer prices, goods and services.
- Disseminating information and improving decision-making relative to land-use planning and environmental management.
- Increasing understanding of the impact of economic growth on local income, employment, costs of community services and local revenue.
- Increasing school teachers' and youths' understanding and appreciation of business and economic concepts.
- Providing in-service training to county staff and other agricultural professionals to better enable them to assist their clientele in decision making.

Expected Results

The educational program conducted by the Extension Economics and Business staff is expected to improve the ability of producers, processors, agribusiness firms and consumers to make more profitable management decisions based upon knowledge gained from a better understanding of economic principles. Individuals and firms using sound management and marketing techniques will obtain lower unit production costs and/or higher product prices thus improving the net returns of their business. With the competitive nature of the agricultural sector, these gains should pass through the production-marketing system to consumers and result in lower consumer prices, improved product quality and greater product availability. In addition, increased knowledge of the operation of economic principles will aid producers, marketing firms and agribusinesses in improving their competitive position in the national and international environment. Information relating to resource use, governmental policy, and government regulations affecting the economy will enhance the general public's understanding of the complexities of its economic environment. Analysis of government policies and regulations will help decision-makers to participate more fully in the political process, to choose among alternatives and maintain or improve their incomes and level of living.

The education effort in economic development is expected to improve knowledge of the essentials for economic growth and result in increased income and employment, better community services and more orderly community growth.

By increasing the economic literacy of county Extension personnel through a comprehensive in-service-training program, agents will be better able to assist their clientele in most areas of economics and business.

Applied Studies and Pilot Efforts

1. The Rocky Mount Extension Swine Operation - Extension personnel are managing and keeping records on a 126-sow operation, which provides cost and return information, and serves as a demonstration for existing and potential swine producers and county agents with livestock assignments. Up-to-date practical information is rapidly transmitted into an effective educational program on the economic and technical aspects of swine production.

2. Coastal Plains Integrated Pest Management Project - A cooperative effort between Extension Economics, Extension Entomology and other departments. A pest scouting program with cost and return analysis and establishment of an Integrated Pest Management Cooperative. This project is now in its second full year.

3. AMAS (Apple Management Advisory Service) - An applied study to determine the cost and benefits of integrated pest management for apple producers.

4. N. C. and S. C. Milk Commissions - Extension Economics and Business in cooperation with county personnel conducts a cost of production study for the N. C. Milk Commission. Assistance is provided the Commission in evaluating and adjusting the economic formula used to establish farm-level

milk prices. Clemson University contracted with the N. C. Agricultural Extension Service to process business records to assist the S. C. Milk Commission in determining the cost of producing milk in the Palmetto state.

5. Tobacco and Horticultural Irrigation - An analysis of survey data (costs, yields and price response from irrigation) obtained from tobacco growers who irrigate flue-cured tobacco. Enterprise budgets for irrigated flue-cured tobacco will be published in 1980-81. A study of the economic feasibility of irrigation for selected horticultural crops is also planned.

6. Post Harvest Handling - An applied study to determine the feasibility of developing multi-commodity facilities and handling methods, i.e., post-harvest cooling, storage, handling and assembly.

7. Enterprise Budgets - To facilitate farm planning in this era of rapidly changing economic conditions, enterprise budgets will be updated and revised annually.

New budgets will be developed for woody ornamentals, dairy heifers, sunflowers and irrigated tobacco, among others.

8. Computer Decision Aids - A relatively new management tool for commercial farmers which includes programmable calculators, terminals and micro computers. Continued development of programmable calculator programs and support to agents using calculators is planned. Programs to be developed for use on micro computers include cash flow analysis, simplified farm business records and corporate taxation. Programs available via terminal from other universities will be evaluated and adopted where feasible, i.e., community service analysis.

9. Agricultural Policy - An Economic Outlook Conference sponsored by the N. C. Agricultural Extension Service and the Center for Economic and Business Studies will be held this fall - the first joint effort between these two organizations. Analyses of proposals for new farm legislation will be conducted with special emphasis on the effect on specific commodities.

10. Land Use Survey - Analyze data and publish material from a survey on land use, land value and land development in North Carolina. This result will increase citizen and local decision-maker understanding of land-use planning and policy and the advantages, disadvantages and limitations of alternative approaches to land-use planning in rural areas.

11. Economics of Clearing and Draining Poorly Drained Soils - An applied research project to obtain data on clearing and drainage trends in North Carolina, the drainage incentive structure facing landowners, public costs of drainage and the possible impact of alternative public policies affecting land clearing and drainage. Continuation from 1979-80.

12. Egg Marketing - An applied study via instore sales tests to determine the feasibility of selling eggs by weight rather than size class. The study will be conducted with the N. C. Department of Agriculture.

13. Warren County Broilers - A feasibility study of broiler production to supply a proposed broiler production-processing operation in the Warren County area.

14. Transportation Costs for Broiler Industry - An applied study to assist integrators with questions regarding economical sources of feed supply, plant location and market selection.

15. Agricultural and Rural Passenger Transportation - Develop and demonstrate procedures to evaluate regional transportation plans for agricultural commodities and rural residents. A 20-county area in northeastern North Carolina is being used as the study area. Continuation from 1979-80.

16. Wilkes County Study - Nearing completion, this pilot effort in North Carolina uses a comprehensive computer program to analyze the monetary benefits and costs of economic growth in Wilkes County. The methodology will be applied to a second county in 1980-81.

17. Fishery Resources Management - A preliminary study of shellfish removal from polluted waters for purging and later harvesting is currently underway. A bio-economical model will be developed to assist the Division of Marine Fisheries in evaluating when to open and close seasons, and maximizing yields from more than one fishery when one or more species is caught accidentally while harvesting targeted species.

18. Beach Erosion - The state of North Carolina currently does not have a policy(ies) dealing with inlet and beach erosion maintenance. This study seeks to identify and evaluate policy options including alternative financing schemes such as user charges. A continuation from 1979-80.

19. Business Management for Seafood Processors - A pilot series of investment analysis workshops will be conducted utilizing specific seafood examples and "hands-on" problem solving. Clientele will be developed through the N. C. Fisheries Association.

20. Economic Perspective - A weekly radio program, currently carried by 70 stations in North Carolina. The programs serve as a format to educate the public on economic issues.

21. Housing and Insurance. Applied research is being conducted on alternative home mortgage investments and the development of decision-making models and rules for life insurance related choices -- how much, what type, comparison to other investments, etc.

22. Center for Economic Education - A new program for the Department of Economics and Business which will provide economic education workshops for (1) individuals working with 4-H and other youth, (2) primary and secondary school teachers and (3) serve as a source and development center for economics programming aids, ideas and materials.

23. 4-H Economics in Action - A nationally acclaimed 4-H Youth Economics Educational Program with strong support from the business community. The 1980-81 thrust will emphasize development of 4-H EIA programs in "high youth

concentration" urban population areas. New programs to meet specialized needs are envisioned for 1980-81, i.e., computers, kinds of businesses.

24. Decision Making for the 80's - A pilot effort is planned for 1980-81 which will involve young farm couples in a specialized program to aid in farm business planning.

25. UHT Milk Study - An investigation of processing costs associated with UHT (ultra high temperature) milk and aseptic packaging including estimated economies of scale, and the implications on economic feasibility and industry structure.

26. Off-Campus Course Offerings - In keeping with the Department's commitment to provide economic training to interested Extension personnel and other professionals, EB-403, Economics of Family Decision Making and EB-415, Farm Appraisal and Finance will be offered for the first time in Williamston, N.C., during 1980-81.

Delivery System

A variety of techniques will be used to conduct the Extension Economics and Business program in 1980-81. Extension Economics will conduct firm and farm visits and hold seminars, conferences and workshops. The staff will continue to use and develop slide-tape and video-tape modules, conduct tour-workshops, and use the "Teletip" system. The use of mass media techniques including publications, press, radio and television will be continued. Applied research and demonstrations will be used to generate new information and illustrate economic principles in decision making.

FOOD SCIENCE EXTENSION

The Food Science Specialists work with the food processing and allied industries and agencies. This includes food processing companies, food equipment manufacturers, food service and institutional feeding programs, food consultants, engineers and other closely related fields as well as governmental and regulatory agencies. Some programs are commodity oriented and others extend across commodity lines. Eventually all will have some beneficial impact upon the consumers.

A. The food processor is faced with complying with many food sanitation and safety laws and regulations on the county, state and federal level. In many cases, compliance means a change in processing procedure or education of the employees, both resulting in increased cost to the processor. A full understanding by the processor of the causes and reasons for the change is necessary.

As regulations become more stringent and regulators become more observant, food plants must be modified to meet these regulations. Food plant mangement needs technical information and assistance on the newer processes and materials needed to comply with the regulations.

North Carolina has a large number of smaller food plants. These small food plants need interpretation of regulations, as well as an awareness of proposed and current regulations, technical information through bulletins and training of their employees which they do not have the time to provide.

All specialists are involved with industry and regulatory agencies to educate both parties on the interpretation and practical application of various regulations. Plans are to work with commodity organizations where practical and on an individual basis when needed. Several new approaches will be implemented.

"Perishable Food Handlers" shortcourse will be inaugurated. These will consist of a one-day training session for food handling personnel from restaurants, fast food operations, schools, hospitals, nursing homes, churches, supermarkets, grocery stores and other food service operations. County extension personnel should serve as the expeditors of this program. Appropriate visual and audio techniques will be used to economize on travel and to carry out county meetings.

Several of the new regulations require that various food processing operations are under the direct supervision of a person who has "satisfactorily completed" an approved course of instruction given under the monitoring of a regulatory agency and presented at an "approved" university with "approved" faculty. Schools have been given for the canning and pickling industries and at least two more are planned for the next year. In the event that new governmental regulations appear to threaten or greatly affect the food industry, contact will be made to the food processing segments affected giving possible interpretations and alternative courses of action. Anticipated results are that the plants will be better informed and regulations will have less of a costly impact on the plants as they will anticipate needed actions.

B. An area of concern to the N. C. food processing industry is the minimization of water use and the handling of waste and wastewaters. Water and wastewater management techniques are vital to the N. C. food industries.

Waste control in food plants continues to be a big problem. Increased scrutiny by environmental agencies makes it mandatory that the food industry use the most current research techniques in dealing with its pollution problems.

Municipal sewer use ordinances will be examined for regulations that may prevent the operation of food plants. The primary audience is plant management and the director of utilities for the various municipalities. The primary teaching method will be one-on-one meetings with plant personnel and municipal personnel to explain various regulations and help with liaison between food processing plants and municipal personnel. Also for the several plants requesting a detailed program, a water and wastewater program will be presented to all plant personnel. Anticipated results will include the prevention of closing of a number of food plants and a reduction in water and wastewater bills for most plants of up to 50% or more with potential savings ranging to more than $100,000/year per plant.

C. Quality assurance programs are the backbone of survival in the food industry. The specialists are providing the industry the latest methods of quality assurance.

Monitoring microbes in poultry food processing plants and those associated with poultry food products (chicken, turkey, eggs, ducks, etc.) help processors to enhance product shelf-life and generate public confidence. Plant and product cleanliness and product temperatures are evaluated by aerobic plate count (APC), psychrotroph count, coliform count and the presence of selected pathogens. Appropriate samples are obtained at selected points along the processing line to assess equipment cleanliness. Samples of poultry food products make it possible to assess impact of equipment and handling on microbial numbers of poultry food products and its subsequent shelf-life.

A seafood freshness scale (1-3 days) with the Torry freshness test meter was developed. The use of this test will be presented to fishermen and fish house operators. By prevention of early spoilage, shelf-life can be extended several days. It is anticipated a 10-15% gain in value, or greater, should result, markedly aiding the income of the fishery.

The dairy industry must keep a constant vigil in respect to antibiotic contamination of dairy products. New test kits have been developed by researchers at NCSU to test for antibiotics at the dairy farm. Attention will be devoted to encouraging wide usage of this new scientific development.

One of the major problem areas facing the food processing and food service industries is contamination of processed and prepared foods, whether it be microbiological, chemical or otherwise. Major emphasis is placed on educating food processing personnel. A concerted effort by management can often reduce problems due to contamination without added expense.

An understanding of food sanitation and safety is vital for everyone involved in sandwich and salad manufacturing. Education programs leading to the understanding of sanitation in food handling, storage, and transportation must be provided to alleviate possible problems arising from food contamination. Commodity associations will be used in the dispersion of this information. These programs should result in better informed food handling personnel and improved product quality for N. C. consumers.

D. Improved processing efficiency, development of new products and use of "underutilized" components are another area of concern to the specialists.

In the dairy industry emphasis will be placed in two areas, whey utilization and promotion of "Sweet Acidophilus Milk."

An NCSU process is being used to neutralize acid whey, condense it approximately five to one and use it as a source of solids in frozen desserts. There are approximately 50 million gallons of frozen desserts being produced within 100 miles of the condensing facility.

Experiences over the past several years with "Sweet Acidophilus" low fat milk has demonstrated that a product that meets the consumer need will be accepted. Approximately 100 plants in 45 states are now processing this product, developed at NCSU. The specialists will continue to devote effort to increasing its share of the dairy products market. Over $150,000 per year is revolving back into research in the Food Science Department for royalties.

Improved processing procedures for sandwich and salad manufacturers will result in increased profits for N.C. vendors. This $220 million food industry can cut its 10% annual losses due to returns and sales by 2% with improved practices in handling, storage, transportation and distribution. Improved use of proper refrigeration alone can increase profits by $40,000 by decreasing losses due to spoilage.

In cooperation with selected seafood processors and packaging industry, improved techniques for extension of fresh shelf-life and frozen storage time will be demonstrated. New products and techniques to assist orderly marketing will also be introduced.

The plan of action involves loan of packaging equipment by industry cooperator and operation of this equipment by seafood processors. Test packages distributed and evaluated by Agricultural Extension Marketing will aid development. This will be followed by industry demonstrations, popular articles, news releases to inform our clientele of these advances. Slide presentations will be made to assist audiences missing industry demonstrations.

Reduction in losses and improved product value should materially add gains to the seafood industries by an estimated 15%.

Poultry food processing methods and procedures are changing. Hand and manual practices are being replaced by automated procedures. These changes bring about improved efficiencies. These changes are accepted and placed in use without full knowledge of their impact on microbial numbers

on the product and possible increased microbial numbers on equipment, thus contamination of food.

Maximum shelf-life and public safety must be maintained. An evaluation of sanitizing procedures for automated equipment between and/or during operations from carcass to carcass is desired to reveal changes in bacterial numbers. An additional interest and need is a comparison between automated and manual practices where possible.

Survey results will be used to enlighten plant personnel so adjustments can be made to extend shelf-life. The addition of materials and equipment line speeds can be increased by as much as 33% without increased product loss and savings in costs per unit processed.

Only a small percentage of the food plants in North Carolina employ trained engineers. Engineering knowledge is vital to the efficiency of these plants and their profitability.

Current information on new materials and techniques in building food plants will be developed. Primary audience will be plant management, contractors, engineers and architects. Anticipated results are that less regulatory shutdowns will occur, more efficient production will result and less costly plants or additions to plants can be built.

Technical information needed by smaller food plants includes converting to metric units. Teaching methods will involve preparing bulletins for food plants that need this information. Anticipated results are that plants and plant management will be better informed and able to function in particular areas.

E. The rising cost of energy for food plants is forcing food plant management to consider energy conservation measures and plan alternative fuel sources to permit processing in spite of fuel shortages. In light of the recent increases in the cost of various forms of energy and spot shortages in fuel, many plants may find themselves returning to coal or installing equipment to enable the use of alternative fuel sources as varied as wood chips or waste from the plant.

In the next year, food plants, particularly the apple industry, will be assisted in efforts to lower their energy usage. Informational bulletins will be prepared for plant management people and plant engineers. Programs on energy conservation will be presented to plant management and employees. The results that can be anticipated are that the food plants will be able to save from 10 to 25% of their current energy costs based on current energy prices with possible savings ranging to more than $50,000/year per plant.

F. One relatively new provider of food services is the child day care operation. There are now over 2,000 licensed day care centers in North Carolina, and each center averages an enrollment of 53 children. Food served at these counters should account for one-third to one-half of the recommended dietary allowances for children. Day care operators are faced with problems differing from other food service systems: a very young clientele with unique needs and wants, pressure to provide adequate nutritive value, limited and often inadequate facilities, and usually unskilled or untrained food service personnel.

Day care centers in select counties of the Northwestern District will be contacted and the role of the Agricultural Extension Service explained. Interviews with the director and observations of the food service production area will identify informational needs. Extension Home Economists with foods and nutrition responsibilities in these counties will be involved in assessing day care centers in their respective counties. As day care centers are contacted, home economics agents will be asked what additional materials and training will be needed in order for them to work with the centers. Educational materials will be developed to meet those needs. Workshops will be planned and conducted for day care center food service personnel to provide information on menu planning, food production, cost control and sanitary food handling.

Anticipated results of providing information for child day care food service workers include a systematic approach to menu-planning, simplified purchasing procedures and preferred food production techniques.

F. Several programs or demonstrations in 4-H are related to food science. The Food Science 4-H Coordinator will increase the exposure of food science to 4-H club members, leaders and agents.

The teaching methods used will be the development and/or revision of both a leader's and club member's manual about food science. It is expected that a manual for leaders and club members will be developed with approximately 10 lessons of 20-30 minutes in length. Information will be provided for trips to food processing plants and a tour of the Food Science building. A slide series and audio cassette or video tape will be prepared for careers in food science. Demonstrations and discussions about some aspect of food science will be given at Senior-Teen Camp at Reidsville, NC.

G. Prospective students and parents of prospective students will be made aware of the educational opportunities offered at the Department of Food Science, N.C. State University. Occasionally, recruitment opportunities will arise through meetings with 4-H groups and other youth. Likewise, opportunities to recommend graduating students for prospective jobs often occur.

E. Program Component 5 -- Natural Resources and Environment

FORESTRY

Wood Products

A decrease in demand was experienced by all wood products industries in the latter half of FY 80. This was caused by the continued high inflation rate, high interest rates and a lack of confidence in the economy. The combination of these factors produced a general, widespread recession in the N. C. sawmill and furniture industries as exemplified by unemployment labor statistics and plant layoff and shut-down records. This depressed economic climate also reduced the number of housing starts to some of the lowest levels in recent years.

Many wood products and other industries, institutions, commercial firms and homeowners are burning wood fuels to meet their energy requirements. The continued increase in energy costs are causing others to reevaluate their present fuel uses and costs.

Finally, the woodlands of the Piedmont and Mountain regions of North Carolina still contain large amounts of unmerchantable timber, particularly hardwood. The lack of suitable markets for this material makes it uneconomical to thin pine stands in these regions. Thus, there is no economic incentive for many landowners to practice sound forest management on their lands.

Extension has the responsibility and capability to address these problems using combinations of case studies, demonstration, workshops, other meetings, publications, and mass media. Educational objectives can be met through the N. C. County Extension organization, and by cooperation with U. S. and N. C. Forest Services, TVA, Extension Services in other states, other subject matter departments at N. C. State University, and other state agencies.

Overall Extension Objectives

The overall objective of the Section is to improve the efficiency with which wood products are produced, marketed or utilized by landowners, harvesting firms, the wood products industry, and consumers. Specific objectives include:

- Informing loggers on all aspects of sound business management, improved harvesting techniques, and new developments in techniques and equipment.
- Developing markets for unmarketable timbers.
- Encouraging industry, commerce, and homeowners to use wood as a fuel when economically feasible.
- Improving lumber yields at secondary wood products manfacturers through better quality control, machining and drying procedures.

- Increasing the quality and value of the hardwood and softwood export lumber through improved handling and drying techniques.

- Increasing the marketability of primary products by helping producers understand and use more widely presently accepted grading rules.

- Informing builders, building inspectors, and homeowners about the proper selection and use of wood products.

Expected Results

The general result expected from the program for FY 81 is increased efficiency in the marketing and utilization of wood products. Specific results include:

- Continued development of a marketing model which will assist in the idenfification of potential sites for all types of wood products companies.

- Completion and implementation of marketing studies for currently unmarketable timber in the northern Piedmont and western counties of North Carolina.

- Quantifiable increase in the lumber yield in at least three furniture plants.

- Reduced number of home fires caused by wood burning appliances.

- Better enforcement of existing building codes by building inspectors in North Carolina.

Forestry Section

The long-term trends of increasing consumer demand for all timber products, habitat for wildlife, outdoor recreation opportunities, and conservation of water and soil resources show positive trends upward. While these trends are indicative of many short- and long-run opportunities for the 245,000 N. C. forest landowners, most have taken a passive attitude toward their forest. Private nonindustrial-owned forest lands are collectively North Carolina's largest single class of ownership. Yet, there still persists a widespread philosophy of mining rather than managing their forest resources. To meet the wood fiber requirements in the next 30 years will require the adoption and implementation of sound silvicultural practices. Through sound forest management practices, many additional benefits will take place, such as increase of net farm income, more recreational opportunities, improved wildlife habitat, and clean water.

Overall Extension Objectives:

Fortunately, the goals of increased fiber and solid wood production, efficient multiple land use, and increased farm income are complementary. Aggressive leadership in educational programs can assist all landowners in answering the question: "What can I do to practice sound forestry conservation and still meet my management objectives?"

Forestry extension programs at the county level will be further strengthened with additional result demonstrations, publications, and visual aids depicting

plantation establishment, silvicultural practices, and economics. In-depth training will be offered to county personnel in forestry practices and assistance in organizing and supporting county forestry interagency committees and landowner associations.

A continued effort to bridge the gap between available research information and unanswered questions pertaining to stand variety and species establishment, selection, nutritional requirements, insect and weed control methods, harvesting, and record-keeping practices will be conducted through result demonstrations.

Emphasis on outdoor forest recreation will focus on the forest user audience, campground facility planning, the determination of resources and services the various agencies and organizations provide the forest user.

Wildlife and game management aspects of forest resources will be disseminated through 4-H youth camps and the development of demonstrations which will maximize the multiple use of resources associated with the forest-land use.

Effort will also be devoted to maintaining communications with public agencies responsible for regulatory measures affecting the small woodland owner to assist him in the solution of specific problems relating to timber and general forest-resource land base.

These tasks are designed to collectively provide a recognizable impact on the major problem of increasing forest-land productivity and income to the small woodland owner in both the short and long run.

Expected Results

Significant improvements in forest management by small woodland owners are expected. Some measures of progress are:

- Increased site preparation and planting on private woodlands 20% annually.
- Organize at least 10 new county forestry associations, bringing the total to 40.
- Increase the acreage of private nonindustrial woodlands under intensive management by 20% annually.
- Increase total income to Christmas tree growers by 25% annually.
- Make available to Christmas tree growers 5 million Fraser fir transplants by 1982 (one-half million available 1976).
- Increased acreages of forest lands will be under multiple product land management criteria.

FISHERIES AND WILDLIFE EXTENSION

Department of Zoology
Department of Forest Resources

During the past 13 years, land use patterns in North Carolina have changed significantly. Almost 400,000 acres of crop and timber lands have been taken out of production because of development. This trend has intensified the farmer's need to produce more on reduced acreages and concentrated wildlife in a smaller geographic area.

Interactions between man and wildlife have also increased as a result of these changes. Recently urbanized environments cause native wildlife and home owners to be backyard neighbors. Many people enjoy and pursue this back-to-nature philosophy, but unfortunately, some have misconceptions about this new relationship. Such misunderstandings could lead to the unnecessary killing of a snake or a child being bitten by a rabid fox. However, most of the time home owners seek to learn more about these creatures and take pride in their ability to identify these animals and understand their life histories.

Farmers pay for the expansion of communities into the rural setting by increased crop losses due to animal depredation, which we in turn pay for at the market. Home owners also suffer by the loss of gardens and ornamentals to wildlife. It becomes a more serious problem when we consider the increased potential for disease transmission from concentrated wildlife populations. For these and many other reasons, questions concerning wildlife in rural and urban settings are increasing along with time spent by county extension staff on wildlife concerns.

The answers may lie with other resource agencies such as the U. S. Fish and Wildlife Service or N. C. Wildlife Resources Commission or in the results of basic research conducted at the University. The fisheries-wildlife programs in the School of Agriculture & Life Sciences (Department of Zoology) and the School of Forest Resources (Extension Forest Resources) can take the lead in getting this information to county personnel so they in turn can help producers, home owners and local government agencies.

By increasing the coordination between the University and state and federal agencies concerned with natural resources, the experience and knowledge of all could be applied to common client problems.

Farmers and rural landowners are rediscovering their private ponds, not only for their recreational potential but also as potential sources of food and/or supplemental income. This renewed interest in aquaculture is occurring at a time when gasoline and diesel fuel prices are allowing aquacultural products to compete in the marketplace with those produced by the commercial fishing industry.

Three agencies--the U. S. Soil Conservation Service, the N. C. Agricultural Extension Service, and the N. C. Wildlife Resources Commission--share responsibilities in the area of farm pond management in North Carolina.

There is a need in this state: 1) to develop a coordinated approach to farm pond problems, 2) to develop instructional tools and lines of communication to teach extension agents and farm pond owners modern pond management techniques and diagnosis and treatment of common pond maladies, and 3) to inject more aquatic ecology into the education of the general public.

F. Program Component 6 - Mechanical Science, Technology and Engineering

BIOLOGICAL AND AGRICULTURAL ENGINEERING

Implementation of technologies and management systems for the most cost-effective task execution under rapidly changing needs, pressures and opportunities is the focus of the Biological and Agricultural Engineering Plan of Work. The departmental program addresses all areas of production agriculture and associated energy and environmental quality considerations, agricultural waste management, water supply and waste management for individuals and rural communities, residential housing, safety and 4-H. The full spectrum of Extension delivery techniques will be used to facilitate implementation of Plan of Work goals stressing technologies for task and total system optimization either for the short or long term.

Horticultural Crops

Mechanization - Mechanization provides the foundation on which the dramatically increased productivity of American farm workers is based. It also continues to alleviate the strenuousness and drudgery of the tasks associated with farming. Machines continue to increase in numbers, complexity, sophistication of function, and cost, requiring even higher levels of competence to utilize them effectively and efficiently. Their rapidly increasing cost, along with their associated energy costs, have made the proper management of machines and machinery operations one of the farmer's major concerns.

Proper matching of tractors and implements to achieve maximum cost and fuel efficiency is receiving greater attention. Field operations which had been done routinely or by custom are now being critically scrutinized for possible elimination or modification to save costs. Alternate tillage regimes which reduce soil losses or fuel consumption are being adopted at a rapid rate. Closely associated with optimized tillage systems for maximum yield and minimum cost are impending requirements for reducing both on-site and off-site movement of pollutants such as sediment, nutrients, and pesticides. All of these considerations have a direct bearing on farm machinery selection and use, and make it more essential that growers be given information and assistance in this area.

Precise and effective application of agricultural chemicals, including fertilizers, is of utmost importance because of increased costs of these materials and the economic and regulatory consequences of their misapplication. Proper adjustment, calibration and operation of chemical application equipment is essential if these important production tools are to continue to be available for use.

Engineering assistance continues to be sought in the development of machines and devices to meet specialized or local needs, which are not being met by the commercial sector. Recent or ongoing examples are a device to inject chemicals into the soil for grape root borer control, a shield for the application of contact herbicide sprays in blueberry and Christmas tree

plantings, and equipment for applying high-pressure, high-volume sprays to grapes and blueberries. These applications are critical to the smaller but nevertheless important specialty-crops segments of the North Carolina agricultural industry.

Field Crops

Efficient Use of Fuels and Electricity in Grain Drying and Peanut Curing - Electric energy and other fuel costs have increased rapidly. An educational program is planned stressing the most efficient use of energy in crop drying while preserving quality.

Grain Drying and Storage Procedure and Techniques - In addition to more efficient energy use, an educational program is planned for better farm drying and storage equipment and facilities planning, selection and use. The lack of planning has caused many problems as the growers expand their operation and enlarge their facilities. Improper equipment selection also may cause a lower quality grain. Improper storage results in spoiled or moldy grain which may contain aflatoxin and be toxic to animals and/or unfit to market.

Peanut Curing Techniques - The harvesting period for peanuts is very short as compared to most crops and covers only about a three-week period. Because of the short harvest period, peanut curing has been a very rushed job and some fuel is probably wasted. An educational effort or efficient operation to save fuel and preserve peanut quality is planned.

Efficient Use of Electrical Energy and Fuel Conservation - Approximately 50 percent of North Carolina's crop production energy is used in curing tobacco. Farm tests demonstrating energy efficient curing practices were conducted on 62 farms throughout North Carolina's tobacco belt in 1979. These tests reveal a potential savings of at least one-third of the estimated 126 million gallons of fuel used each year in curing tobacco. Educational efforts are planned to encourage widespread implementation of these energy saving practices.

The limited reserve and increasing prices of fossil fuels, coupled with the prevailing attitude toward tobacco products, pose questions as to the availability of fossil fuels for curing tobacco and imply the economic feasibility of alternate fuels. Farm tests in 1979 demonstrated the possibility of using wood for curing tobacco in modern bulk barns maintaining the advantage of thermostatic temperature control. Extension effort in 1980 will be directed to further testing of the farm feasibility of using wood as a curing fuel.

Water Management

In recent years water management has received increasing attention in North Carolina. Its importance will continue to increase because it becomes a limiting factor for more farmers each year. Most of the emphasis has been placed on irrigation, but there is also interest in surface and subsurface drainage, erosion control, other conservation measures and water supplied.

Due to the nature of the crops being irrigated, farm and field size, the degree of interest is not uniform over North Carolina. Most of the interest in irrigation comes from corn, peanut and soybean producers. However, vegetable

and fruit producers, tobacco growers and small grain and forage producers are expressing increasing interest. Most of the interest is in the selection and use of mechanical-move sprinkler irrigation systems, but there is increased interest in drip and subsurface irrigation systems.

Selection of an irrigation system requires that attention be given to picking a system that will not become obsolete very quickly, yet will be most efficient from the standpoint of crop production, energy required, water consumed and amount of labor required. All these criteria are not compatible. When one considers that each system is site specific, it is essential that much of the irrigation work be conducted on a one-on-one basis. A fairly large number of new suppliers, dealers and manufacturers are entering the irrigation business. Some time must be devoted to meeting these people, establishing a good relationship, and then working to convince them of the need for good design and upgrading their expertise.

Irrigation is a production tool that--used properly--will return most growers a net profit each year. However, North Carolina has large losses every year to excess rainfall. Since the losses to poor drainage may not be as dramatic, convincing growers to install drainage is not easy. In some cases irrigation systems are installed when an adequate drainage system should have been the first purchase. More emphasis will be placed on installing a total water management system.

The objectives of the water management program are to train county extension personnel so that they can properly advise farmers on the correct system to install; to work with manufacturers, dealers and installers of equipment to upgrade their expertise so that they can provide better assistance to growers; and to prepare educational material that can be used by growers, county extension staffs, irrigation suppliers and related industries.

The expected results are that growers will purchase systems that most nearly fit their particular needs. Hopefully, they will gain a better appreciation of water management and will integrate irrigation, drainage, erosion control and other soil conservation practices into their total farming operation.

It is expected that the on-farm tests on irrigation scheduling will be continued with specialists from Crop Science and Soil Science and that an applied research project using irrigation equipment as a medium for the application of herbicides will be conducted in cooperation with a specialist from Horticultural Science.

Livestock and Poultry Production Systems

The swine industry continues to be important to the agricultural economy of North Carolina. The pioneering efforts in swine housing with special emphasis on controlled environment, labor reduction and waste management practices enhance this commodity and demand extensive Extension input. Information gathered from previous programs and studies provides a foundation on which to continue an active swine housing program. Energy usage and conservation and alternative energy sources will be stressed through better construction practices, insulation techniques and selection and operation of equipment as technology develops.

Major emphasis will be placed on structural design and construction of poultry houses. Snow and ice storms result in considerable economic losses to the industry almost every year. This happens because too much emphasis is placed on initial housing costs because of the economic returns and not enough emphasis on adequate structural design.

Swine and poultry production account for significant on-farm energy use. As a continuation of the efforts directed toward energy conservation and alternative energy sources, a study will be implemented in poultry and swine production through a grant from the N. C. Department of Energy. Farm audits, at individual production units, will make farmers aware of their energy usage and highlight areas where they can implement ready-to-use energy conservation techniques and procedures. Monitoring of electric power and LP gas consumption on commercial farms will provide a solid base for production cost analysis and the magnitude of these energy sources in relation to feed energy and animal performance.

Waste disposal, an integral component in livestock and poultry production systems, cannot be separated from the design of housing systems. Consequently, concerted efforts will continue in this subject matter area in cooperation with the waste management specialist. Flushing as a mechanism for waste removal and improving the in-house environment will receive further study so that appropriate design criteria and flush system plans can be developed.

Building plans for housing and related facilities will be the major tool used in keeping extension agents aware of new technology. Additionally, other printed subject matter, personal assistance and in-service training will be used to keep extension agents professionally competent and fully apprised of new and changing technology.

The Farm Buildings Plans Service will continually be updated because this service is one of the most effective teaching tools available through Extension. Each year approximately 12,000 to 18,000 copies of plans for all types of farm buildings and equipment are distributed to residents of North Carolina.

Interaction with other local, state and federal agencies will be emphasized and encouraged because of overlapping responsibilities.

Environmental Quality

Water Supply and Conservation - Rapid industrialization and enormous population growth pressures are resulting in potentially serious water management problems. Through a comprehensive water resources planning effort, many of these potential water resource problems will be averted. Prudent management of available water resources has demonstrated potential for preventing unnecessary degradation and consumption of these precious resources. Further, the potential savings to taxpayers, industries, agriculture, and government are substantial. Agricultural Extension Service intervention can be effective in three areas. These are (1) water supply, (2) water use, and (3) wastewater treatment. Each of these areas of water management is important to both urban and rural residents and during the upcoming year an intensive

research, demonstration, and educational effort is planned to help urban and rural families, industries and regulatory agencies (1) ensure adequate water supply, (2) conserve existing water and energy sources, and (3) treat household, farm, municipal and commercial wastewaters in environmentally sound and economically attractive manners.

More and more individuals, industries and businesses are locating in the rural areas of our state. Once so located, each becomes a consumer of both water and energy resources. The supply of water in many rural areas of the state is fixed and often very low; and as the population in these rural areas increases, the available supply of water is further depleted. Hence, new water supply sources are required. Here, through Extension intervention and state cooperation, several small towns have been identified and new water strategies are being investigated.

Existing water supplies in some of the rural areas of our state have been tested by water supply labs around the state and appear to contain extremely high levels of bacteriological contamination. Measures must be taken in both the rural and urban areas of the state to ensure that an adequate supply of potable water is available to support both the existing and projected populations in these areas, and Extension is cooperating with a number of federal, state and local agencies in providing assistance in this area.

An increasingly often overlooked alternative to the emerging water supply problems in North Carolina is water conservation. The average household can easily reduce water consumption by 25 percent and numerous tangential benefits result from reduced water consumption. Paramount among these is decreased energy consumption. One pilot program in the Raleigh area concerning water conservation has demonstrated that a 25 percent reduction in water consumption is possible and a concomitant 15 percent reduction in energy consumption is possible. This research demonstration effort has been on-going since December 1978 and monitoring will continue. Further, demonstrations of water conservation are on-going in several residential areas and recently a comprehensive water conservation program has been planned for release in 1980. This program will be available and follow-up will be necessary to determine the utility of this educational effort.

On-Site Waste Treatment - Many rural areas of this state face severe restrictions, and in some areas moratoriums are in force because of inadequate wastewater treatment facilities and poor soils. An alternative to costly municipal wastewater facilities is on-site wastewater treatment. A vital component of the water and wastewater management program is wastewater management in rural areas. In this regard the program will examine various alternatives to conventional wastewater treatment facilities including on-site wastewater treatment systems, cluster wastewater treatment systems and wastewater treatment systems for small communities. Here the Extension Service is intervening in several counties throughout the state to assist with the formation of sanitary districts or other public bodies which are eligible for both federal and state assistance. This assistance is in the form of 201 grant monies and several small, often unincorporated communities in the state are now taking advantage of these federal programs for innovative and alternative systems. To further this effort, the

Extension Service is providing some assistance in the design, installation, or monitoring of these alternative systems and this will continue to be an important work activity of this program.

A final area of concern revolves around the problems of hazardous and toxic waste disposal. Recently the state received a large grant to study the extent of the toxic and hazardous waste disposal problems and the Extension Service will be involved in these determinations.

Animal Waste Management - Livestock and poultry producers are becoming more receptive to implementation of those waste handling techniques which make their production and labor use more efficient. Most new swine producers and many existing producers have implemented or are considering some type of flush system for waste removal and collection. Use of this technology results in improvements in herd health, performance and environmental quality, both in-house and surrounding the facilities. Dairymen are increasingly accepting such techniques as manure scrape ramps, solid storage areas, earthen liquid manure storage pits, solids separators, and retention ponds or lagoons for updating and improving their waste handling facilities. Educational efforts will continue to promote implementation of these technologies.

Intensive stream monitoring studies for assessing the environmental impact of runoff from mountain dairies will be continued to better understand what type of pollution abatement systems are necessary to satisfy environmental regulations. Innovative techniques for reducing the pollution potential from small dairies including simple manure solids settling basins and grassed vegetative filters will be constructed and evaluated on approximately three dairy farms in the mountains.

Irrigation will continue to be promoted by both Extension and the North Carolina Irrigation Society as the best recommended land application practice for lagoon effluent and retention pond wastewaters. More emphasis will also be placed on including the manure and wastewater applications into a complete agronomic and cropping program with emphasis being placed on such items as waste application schedules and methods, waste nutrient analyses, proper fertilization rates, soil testing and liming rates, and crop selection and rotation.

Agricultural Nonpoint Source Control - In recent years there has been an increasing awareness of the role of nonpoint sources of pollution in creating water quality problems in our rivers and streams. Growing evidence indicates that agricultural runoff transports a substantial portion of the total load of pollutants to surface waters.

Section 208 of Federal Law 92-500 specifically addresses nonpoint pollution and remanded each state to prepare a plan to abate such sources. In North Carolina the agricultural section of the plan was written by a group of agricultural agencies known as the Agricultural 208 Task Force. The plan calls for the adoption of sound agronomic, cultural and conservation measures called "Best Management Practices" (BMP's) to enhance production, conserve the soil resource and reduce runoff impacts. The plan calls for a strong educational effort under the leadership of the Agricultural Extension Service.

Work under the continuing 208 planning program will evaluate relationships between agricultural practices, conservation techniques and water quality to set a basis for the technical assistance and cost-sharing incentive elements of the agricultural 208 plan. Other activities in support of the continuing planning process will be to evaluate and update state water quality monitoring programs through personal contacts, committee activities and cooperative data analysis. Additionally, in four areas across the state special studies will be conducted on farms and small watersheds to evaluate relationships between agricultural practices, conservation techniques, and water quality so that the cost effectiveness of proposed management practices and potential success of a voluntary compliance program can be better evaluated on the basis of actual data. Another goal of these special studies will be to document background or natural water quality and the impact of various agricultural nonpoint sources on receiving water quality. This information will be collected and analyzed in a manner such that relative impact of various activities in a watershed can be determined and the cost effectiveness of alternative management practices or conservation techniques can be evaluated.

The N. C. Agricultural Extension Service will conduct the statewide 208 educational program in conjunction with other agricultural agencies. The major components of this educational program are (1) to create awareness among citizens and particularly among farmers of water quality problems, goals and programs; (2) to work with relevant specialists to evaluate and refine recommendations for BMP's; (3) encourage the implementation of currently available state-of-the-art management practices for abating nonpoint pollution; and (4) conduct field demonstration studies to evaluate the water quality benefits and cost-effectiveness of BMP's on a farm-scale and watershed basis. Methods which will be used to achieve 208 educational program objectives are mass media information dissemination, field demonstration of management practices to reduce nonpoint source impacts, and use of the research-extension-clientele link for motivating implementation and identifying research and extension needs.

Work will be conducted on an EPA/USDA grant to develop a national evaluation of agricultural nonpoint source control programs. Training of extension specialists and other cooperative agency personnel will be conducted to provide guidance for field monitoring and evaluation of nonpoint source control projects and to use developed data to clarify relationships between agricultural practices and water quality on both a technical and economic basis. This planned three-year project will be conducted in close cooperation with Federal Extension, EPA, ASCS, SCS, ESCS, AR, ES and other agricultural agencies.

Energy

Work will be conducted under a North Carolina Energy Division grant to evaluate energy conservation and alternative fuel sources in agriculture. Major subject areas will be the use of alternate fuels for tobacco curing and crop drying, and energy conservation for swine and poultry housing systems. Training and technical assistance will be emphasized through Extension vehicles such as site evaluations, demonstration farms, workshops, commodity meeting training, and individual producer contacts. On-site energy audits

will be emphasized to increase energy awareness and encourage implementation of proven technology for energy conservation and utilization of alternative fuels.

Fuel Alcohol - The high price of petroleum fuel has sparked an intense interest in fuel alcohol. The Extension Agricultural Engineering Department is already receiving a large number of requests for information and help. An educational program is planned to find the best ways for the possible farm production of alcohol and its use as a motor fuel.

Residential Housing

A program to provide engineering support to complementary areas of the Housing and House Furnishing program will be initiated. An initial task will be to update the residential housing plan service based upon current needs and long-term program goals. Remodeling will become an increasingly important program adjunct. Energy conservation techniques and alternative energy sources will be evaluated and demonstrated that are most suitable for both short- and long-term application. Revision of codes to better meet changing needs and requirements will be encouraged. The full range of Extension delivery, educational and technical service techniques will be used in conjunction with all appropriate cooperators including construction and building trade associations.

4-H

The engineering 4-H projects include the Automotive Project and the Electric Project. All ongoing work will continue including the 4-H Electric Congress which is conducted in cooperation with the electric power companies, district and state demonstration program in the electric project. North Carolina will also cooperate and assist in the Eastern Regional 4-H Engineering Contest (auto skill driving, tractor driving and small engine demonstrations).

G. Program Component 7 - Safety

BIOLOGICAL AND AGRICULTURAL ENGINEERING

Prevention of accidents through hazard awareness and understanding will be the basic approach of farm and home safety programs. Educational materials will be developed dealing with specific safety hazards on the farm and in the home. Emphasis in content of these materials will be placed on enhancing user awareness and understanding of safety hazards. Recommendations of preventive measures will be made. Compliance with preventive measures will be encouraged through awareness of presence and causes of hazards. Materials will be developed according to needs indicated by the completion of the North Carolina Farm Safety Survey.

COMMUNITY RESOURCE DEVELOPMENT

PLAN OF WORK FY-81

NARRATIVE STATEMENT

Extension's Community Development programs give emphasis to group action through a variety of citizens' groups and organizations. These organizations are problem oriented and conduct programs and activities built around community, county and multicounty problems and needs. The need for these grass roots efforts continues to grow in importance. Further, as new national policies mandate citizen participation in governmental programs, it is important that an informed and skilled citizenry be available who have the ability to work through viable, broad-based citizen organizations at various levels. Extension as an educational agency has the opportunity to expand its leadership in this area.

While the Extension education program will continue to respond to the needs identified at the local level, the planned community development program for FY 81 will concentrate on organization, leadership and citizen participation as related to the problem areas identified in 4-Sight. These areas are: (1) Land Use Planning, (2) Economic and Manpower Development, (3) Health, (4) Housing, (5) Community Services and Facilities, (6) Community Recreation, (7) Environmental Quality, (8) Crime Prevention, and (9) Energy.

1. LEADERSHIP, ORGANIZATION AND CITIZENS PARTICIPATION

a. Clientele Problems

There are a number of obstacles apparent as individuals and groups attempt to deal with community problems and opportunities. These problems include:

(1) The limited ability of many individuals to respond to opportunities or deal with issues in an organized manner.

(2) A substantial number of citizens have not had the opportunity to develop their leadership potential.

(3) Limited knowledge on the part of individuals and groups on how to establish and develop need based organizations.

(4) How to obtain adequate citizen input in the problem-solving process, particularly as it relates to groups.

Extension's Community Development program will give emphasis to the development of leadership and organization through which issues can be approached on a community basis and will improve the individual's ability to cope with the challenges and make decisions necessary to function effectively in today's society.

b. Extension Objectives

Extension will assist in the establishment and maintenance of a variety of organizations at the local and state level to improve citizens' input in group processes to enhance group decisions. Specifically, emphasis will be placed on improving the individual's leadership skills and the group's ability to deal effectively with community issues. Training will occur for the most part in the context of problem-solving.

Extension will assist leaders of established organizations to improve and adjust the organization to fit current needs. Consultation will be provided to certain key leaders and advisory groups.

c. Expected Results

(1) Approximately 2,000 members of the Extension Advisory Leadership System will receive in-depth assistance in Extension programming.

(2) In-depth assistance in a variety of leadership skills will be provided through 2,500 leaders.

(3) An additional 14,000 leaders will be assisted in task-oriented processes and skill training.

(4) Seventy-eight ad hoc committees will be organized for assisting a variety of group purposes on short-range projects. Programs in 29 counties will be assisted in developing additional organizations to deal with a variety of content areas important to the citizenry.

2. COMPREHENSIVE PLANNING

a. Clientele Problems

Traditionally, North Carolina has experienced out-migration. The trend began to shift during the late sixties and during the decade of the seventies has been reversed, resulting in real growth in many North Carolina counties. Shifts in population in the state continue to be a major factor as people move to seek employment or other amenities. This population growth and shift has generated demands for services, facilities, and placed substantial demand on some land, especially in or near metropolitan areas and in rapidly growing rural communities throughout the state.

Although North Carolina still maintains its rural character, the move back to the country has led to land-use problems in the urban fringes and in more outlying rural areas as well. In rural areas there is a special need for educational programs relating to the loss of prime farmland, the drainage of poorly drained soils, the threat of nuisance suits against producers and the passage of legislation fostering and requiring the development of land-use planning.

This situation is further complicated by scarce and expensive energy resources, a continuing shortage of available quality water for development and lack of capacity to deal with these changes in an orderly and systematic manner. Government is also faced with inflation and limited funds to accommodate needs.

Land utilization focuses on the spatial aspects of growth and development is concerned with the general use of land resources. Local officials and planners are encouraged to consider all aspects of the community when making plans for its future. These include the economy, public facilities and buildings, the capacity and location of water and sewer facilities, transportation systems, land-use control, and facilities which will promote economic success, comfort and convenience and the general welfare of the citizenry.

b. Extension Objectives

Extension's educational efforts will be interdisciplinary in nature involving the cooperative assistance of state and local leaders, policy-making bodies and representatives from other agencies and the general citizenry.

(1) Develop and provide information to leaders on land use, in general, the land use planning process and the more technical aspects on soil capability potential and soil classification.

(2) Seek to bring about an understanding of the social and economic forces affecting land utilization, the role of government and citizen participation in land utilization and the importance of citizens' attitudes and opinions on land use planning or alternatives.

(3) Improve understanding of the impact of rural non-farm growth and the issues and alternatives related to the protection of agricultural land.

c. Expected Results

(1) Leaders in 36 counties will improve their knowledge and understanding of the land use planning process and some will get involved in the process.

(2) There will be an increase in the use of technical data in land use planning which will lead to the development of more soundly based, functional plans for land utilization (i.e., use of soil surveys and soil capabilities and the natural aesthetic qualities of land and topography).

(3) Extension's land utilization educational program will contribute directly to:

(a) 8 counties adopting county-wide land use plans

(b) 23 counties re-evaluating land use plans in view of rural growth

(c) 6 counties adapting regulatory or enforcement measures such as sub-division regulations, zoning ordinances and enforcement of building codes.

3. COMMUNITY SERVICES AND FACILITIES

a. Clientele Problems

Given the population growth and shifts in North Carolina, adequate community services and facilities is a primary concern for many communities. Perhaps the most limiting is the availability of water for residential, business and industrial growth and development. Many soils are not suitable for adequate on-site sewage disposal. As a result demand for community sewer systems is increasing.

Although some progress is evident, some counties still have four or five different telephone systems in a county. Long distance toll charges are incurred by some citizens in 47 of our 100 counties as they communicate with the county government or other entities within the county they reside.

The Board of Health has approved for most counties a solid waste disposal system which normally includes the land fill and in some a collection system. However, these systems are improperly utilized throughout the state due to lack of citizen understanding and attitudes of citizens toward the disposal of waste materials.

Other services of concern to areas throughout the state involve protective services (i.e. fire, ambulatory, police), rural public transportation systems, extended care nursing home facilities and recreation.

b. Extension Objectives

(1) Conduct educational programs in 24 counties related to community facilities and services, through organization of appropriate citizen groups and informing them of the situation and alternatives available.

(2) Improve the utilization of solid waste disposal systems in 35 counties, by making citizens aware of the disposal system available in their locality and the proper use of this system.

(3) Improve inter-agency cooperation in general throughout the state as it relates to the solving of community issues or community needs dealing with community facilities and services.

4 A. NATURAL RESOURCES AND ENVIRONMENT - ENERGY

a. Clientele Problems

Availability and cost of energy resources are increasingly major concerns of communities throughout North Carolina. These factors affect the organization of institutions and may in fact dictate the structure of communities of the future. Cost to individuals for energy is substantial. The cost to communities is equally important and affects decisions such as where people live and work, transportation and policy decisions.

b. Extension Objectives

Increase awareness, knowledge and understanding of homeowners, managers of private and public facilities and governmental officials of certain practices for the conservation and management of energy resources.

c. Expected Results

Educational programs on energy conservation and management will reach 25,000 leaders and 400,000 citizens in North Carolina which could result in a 7% reduction of energy resources.

4 B. NATURAL RESOURCES AND ENVIRONMENT - EROSION

a. Clientele Problems

The loss of thousands of tons of soil by erosion each year continues to be a major problem in North Carolina. Highway construction, residential and business development and other land-disturbing activities are a major source of soil loss and sedimentation of streams and lakes. Municipalities and counties have adopted sedimentation regulations that are in various stages of enforcement.

b. Extension Objectives

Extension's educational program in erosion and sedimentation will assist clientele involved in land-disturbing activities understand the regulations and practices necessary to control run-off and reduce subsequent erosion and sedimentation. Extension will attempt to acquaint the general public with the issue and procedures established for control.

c. Expected Results

(1) Educational programs on prevention of erosion and sedimentation will be conducted in 18 counties. It is expected that 2,500 leaders will be involved in workshops related to this topic to help them better understand the overall problem and be knowledgeable in the methods of preventing loss of soil resources.

(2) Governmental leaders in 20 counties will be assisted in determining procedures for reducing sedimentation and in means of improving the enforcement of the regulations adopted.

(3) The general public in 8 counties will develop a better appreciation for the need to conserve soil and resources and maintain vegetative cover.

4 C. NATURAL RESOURCES AND ENVIRONMENT - VISUAL

a. Clientele Problems

Throughout the state it is evident that numerous citizens and businesses are not aware of the need to improve the visual beauty of the state. Although a solid waste management plan has been adopted throughout North Carolina, residents continue to abuse the landscape with improper disposal of trash, garbage and junk. Private and public property such as parks, buildings, fences, vacant lots, roads, curbways and other areas are not cared for adequately. Some of these practices represent a health hazard; others are unsightly, and all affect quality of community life.

b. Extension Objectives

Assist the leadership of 56 counties in developing a program to improve the visual beauty by the development of specific plans for beautification of homes, businesses, and the landscape. Extension will help communities select targets for the efforts such as public places, businesses and home sites. The involvement of many interested organizations and technical resources will be a part of the program in these counties.

c. Expected Results

(1) Leadership of 35 counties will conduct an intensive campaign that will effectively reach 250,000 people resulting in an improvement of the visual environment.

(2) Long-range plans on beautification will be developed in ten counties which will include plantings according to an overall landscape design to insure lasting beauty.

(3) Solid waste disposal systems will be more adequately utilized in 14 counties as people learn to adjust their attitudes towards the disposal of trash, garbage, and junk.

5. HOUSING AND HOME ENVIRONMENT

a. Clientele Problems

Housing is perhaps the most expensive single investment made by individuals and families in their lifetime. Currently, costs are very high, interest rates are soaring, and adequate housing is difficult to locate in many communities. Until recently building codes adoption and enforcement affected few rural counties. Often builders were not aware of the safety standards in building codes and very little inspection, other than electricity, of residential construction was conducted in most rural areas. Legislation now provides that codes be adopted and enforced throughout North Carolina by local government. There is a need for builders, developers, and homeowners to become knowledgeable of the code and the protection it provides in residential housing.

b. Extension Objectives

(1) To assist developers, builders, and homeowners to become aware of the building code and of the inspection procedures required by state legislation.

(2) To provide information to the potential homeowner on proper site selection and development for homes.

c. Expected Results

Understanding of building code provisions will be improved in 20 counties in North Carolina. Developers, builders, and potential homeowners will improve their knowledge of safety and insulation standards specified in the code.

6. ECONOMIC DEVELOPMENT

a. Clientele Problems

Many small towns and rural areas of the state are characterized by low incomes and inadequate employment opportunities. Citizens and local government officials often have inadequate knowledge of the essentials necessary for economic growth or the activities in which local citizens and groups can engage to stimulate economic growth. Responsible use of tax dollars requires that policy makers, other government officials as well as the general public understand the impact of economic growth on land-use, and the costs of community services.

The low educational attainment of our work force and the relatively low level of skill development are of considerable concern to leaders and planners. Youth and minorities are usually disadvantaged in the labor market.

b. Extension Objectives

Extension will conduct workshops in cooperation with state and local agencies on economic development. Local economic development planners will be encouraged with local leaders involved as prescribed in the Small Community economic development program.

Citizens will be made aware of opportunities to upgrade their skill level and means of improving educational level.

c. Expected Results

About 100 small rural communities will be certified as a Community of Excellence.

7. OTHER PROGRAMS AND EXPECTED RESULTS INCLUDE:

A. Capacity building and interagency cooperation at the state, area and county level will improve as Extension collaborates with other resources to solve individual and community problems.

B. Conduct, in cooperation with leaders, a state-wide Farm-City Week program with emphasis on participation at the county level to enhance understanding by rural and urban people of their interdependence. About 700 different projects will be conducted which will involve 45,000 people directly. Media coverage will reach thousands of additional people.

C. 4-H Community Development opportunities for youth will be targeted for about ten counties with others being involved. This thrust is expected to provide learning experiences about community for 1500 youth and leaders.

D. Continue to provide socio-economic data to a host of decision-makers and planners to improve plans and action.

Specific thrusts of 1890 staff will include:

Extension Objectives

1. To assist limited-resource families by incorporating current information and programs on labor force, manpower topics, and labor-related legislation into CRD educational programs.

2. To increase the understanding of limited-resource families of public policy issues and their effect on various segments of our population.

3. To identify resources available and provide educational materials for agents and leaders on topics related to agricultural land loss.

Expected Results

1. A substantial number of wage earners in targeted counties will improve their income or income potential.

2. Each participant in public policy issue discussions and other educational programs will have an increased understanding of the effect of that issue on their own lives.

3. Loss of minority-owned agricultural land will be substantially abated.

8. PILOT EFFORTS BEING CONDUCTED

1. Agricultural Policy - An Economic Outlook Conference sponsored by the N. C. Agricultural Extension Service and the Center for Economic and Business Studies will be held this fall - the first joint effort between these two organizations. Analyses of proposals for new farm legislation will be conducted with special emphasis on the effect of specific commodities.

2. Land Use Survey - Analyze data and publish material from a survey on land use, land value and land development in North Carolina. This result will increase citizen and local decision-maker understanding of land-use planning and policy and the advantages, disadvantages and limitations of alternative approaches to land-use planning in rural areas.

3. Wilkes County Study - Nearing completion, this pilot effort in North Carolina uses a comprehensive computer program to analyze the monetary benefits and costs of economic growth in Wilkes County. The methodology will be applied to a second county in 1980-81.

4. Beach Erosion - The state of North Carolina currently does not have a policy(ies) dealing with inlet and beach erosion maintenance. This study seeks to identify and evaluate policy options including alternative financing schemes such as user charges. A continuation from 1979-80.

5. Agricultural and Rural Passenger Transportation - Develop and demonstrate procedures to evaluate regional transportation plans for agricultural commodities and rural residents. A 20-county area in northeastern North Carolina is being used as the study area. Continuation from 1979-80.

6. On-Site Waste Water Disposal - All of the demonstration sites will be continued for testing a variety of on-site waste water disposal and treatment systems. Each will test alternatives for the septic tank commonly used throughout North Carolina. Many soils or conditions for waste disposal in developing areas do not permit the use of the traditional septic tank. The sand filter system, the trickle system, and the mound system will be demonstrated in some of these problem areas.

7. A survey to determine the feasibility of a farmer's market for two counties will be conducted to determine the interest of the producers and the interest of the public in a farmer's market.

9. INNOVATIVE IDEAS FOR ENERGY INFORMATION

a. Clientele Problems

The Extension Service has long provided information to clientele across the state on conservation and measurement of energy and on energy policy matters. The Extension Task Force on Energy began to discuss ways of enhancing its energy education program throughout the state. The idea of an energy information center for each county was discussed. A decision has been reached to proceed to design and place in each local Extension office an energy information center.

While the center is in its elementary stage of development and conceptualization at this point, plans are to include in the center publications and lists of publications dealing with energy, slide tape programs, video tape programs, references for Teletip messages which can be dialed toll-free, referral services to other information sources, technical assistance, and programs.

b. Extension Objectives

The objective of Extension in placing energy information centers in each local Extension office is to provide a clearinghouse and a source for all available sources of information concerning energy. The Extension staff in the state will attempt to incorporate all new resources as they develop into the center and make them available to the citizenry as a source of information about energy.

c. Expected Results

The centers should become a popular source of energy information by the people. The first year it is expected that an additional 25,000 families will be reached with energy information.

HOME ECONOMICS

NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

FY 1981

Situation Statement

The FY 1981 Plan of Work is based on high priorities related to the current situation in the state. Families and individuals continue to be confronted with problems of inflation, energy supply and energy costs. The costs of living--particularly medical, energy, housing, and food expenses - continue to mount. Life styles are being affected--enormous use of credit, increased stress and dissatisfaction with the quality of life, and growing feelings of helplessness in coping with the problems.

North Carolina has a diversity of family structures and value systems that require a variety of educational alternatives in terms of content and methodology. In addition to the nuclear family with husband, wife, and children, there has been a steady increase in other family forms. One out of every five babies is born out of wedlock. Some associated problems with teen-age pregnancies include: high infant mortality rate, sexually trasmitted diseases, unwanted children, and increased welfare rolls. The divorce rate in North Carolina continues to grow, showing a rate of 4.7 increase for the year ending in March 1979. Almost one of every five families with children over 18 years of age was maintained by a single parent--divorced, separated, widowed, or never married; 40 percent of whom were living in poverty. In this same connection, there is evidence of a growing number of child abuse and/or neglect cases -- more than 350 confirmed cases per month.

North Carolina continues to be one of the most rural states in the nation. This state is beginning to change from a youth-oriented population to one of more people in the middle years of life. For example, estimates for the early 1980's are that 27 percent of the state's population are between the ages of 40 and 65. This represents about 1,500,000 people. On the other hand, the percentage of persons in the 65 and over age group continues to increase. One-third of the 750,000 older citizens exist on very inadequate incomes, and many of them lack an awareness of community services and educational resources that could be helpful to them in more efficient management practices. The state has the highest percentage of husband-wife workers in the nation, yet family income ranks among the lowest. The increased incidence of dual paycheck families has indeed resulted in a growing need of viable child care alternatives.

In summary, the FY 81 Plan of Work focuses upon some of the most urgent and pressing needs of North Carolina individuals and families. In implementing the plan, a variety of methods will be used. Additionally, volunteers and paraprofessionals will be utilized to extend Extension's professional outreach. Appropriate training assistance will be provided for their continued effectiveness. Tele-tip will be revised and expanded as a service to provide families with current information related to the concerns of homemaking and family living.

Objectives Related to Staff Development

A. To develop the competence of agents for the process of delivery of educational programs.

1. State-wide training classes will be conducted in November and December for more than 200 agents with emphasis on subject matters, skills, and current developments in each phase of family living. Training will be conducted by specialists and outstanding resource persons in a given area.

2. Extension specialists will continue to provide agents written subject matter for background study and popularized materials for Extension's clients. For some topics, specialists will make available visual materials for use in counties. Specialists will also be available for consultation by county home agents with special problems as time permits.

3. Specialists will continue to provide training through personal conferences in county offices and groups in workshop settings.

4. Some agents will be continuing their graduate work, while others will be beginning.

B. To provide a forum to help agents and other professionals understand social, political, and economic issues impacting on individuals and families. The Annual Eloise Cofer Family Living Seminar for Spring 1981 will be one phase of this objective. Other public policy issues related to the family as Women and the Law, and Family Impact Issues, will be dealt with through county forums, special interest meetings, Extension Homemakers Area Meetings or home study courses.

CLOTHING DEPARTMENT

A. Problems to Be Addressed

1. Clothing Alternatives

Spiraling inflation is continuously exerting economic pressure on the family's income. Because of inflation, families are having to look for ways to extend the dollar's purchasing power. As a non-constant discretionary item, clothing is one of the first items to feel the contractual dollar pinch. From 1969 to 1979 the clothing portion of the family's budget has dropped from 10.6 percent to 6.99 percent. This money provides for clothing purchases, shoes, accessories, home sewing, as well as garment and shoe care and maintenance. For this reason evaluation of effective clothing alternatives for better utilization of all family resources is necessary to provide and maintain adequate clothing for family members.

2. Energy Conservation

The scarcity of energy along with its upward cost has created a situation of restructuring clothing priorities. A major consideration is basic to every individual: how to stay warm in winter and cool in summer without wasting precious energy and/or paying exorbitant utility bills. Since clothing protects the body from the elements, knowing which types of wearing apparel will provide adequate comfort is an important consideration in saving energy.

Another component of energy conservation focuses on clothing refurbishing and maintenance. With water as well as energy in limited supply, home laundry techniques need reviewing. One way to conserve both water and energy is through the use of good laundry procedures. These prescribed laundry procedures will assist the family in using less water and energy while concurrently producing clothes with acceptable cleaning standards.

3. Personal Appearance

According to the Consumer Product Index, individuals spend 2 percent of their discretionary dollar on personal appearance items. Even though the percentage is small, the fact there is a budgetary allocation supports the premise that most individuals have some interest in their personal appearance. Personal appearance as a communication of social values and self-expression encompasses grooming, body poise, and aesthetics. Therefore, many individuals need assistance in making the most of their personal appearance.

B. Clothing Objectives

1. Clothing Alternatives

- To help county clientele learn how to assess their individual and/or family clothing needs.

- To assist county clientele in acquiring and maintaining adequate clothing at appropriate price and quality to fit their life styles.

- To help county clientele:

  1) Assess the feasibility of using clothing alternatives other than purchasing new garments to help stay within the clothing budget.

  2) Acquire the necessary skills needed to use clothing alternatives.

2. Energy Conservation

- To help county clientele learn how to use climate-control dressing year round.

- To help county clientele learn how to conserve energy by using prescribed stain removal and laundry techniques and still maintain acceptable cleanliness standards.

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2. Energy Conservation

- To help county clientele learn how to use climate-control dressing year round.

- To help county clientele learn how to conserve energy by using prescribed stain removal and laundry techniques and still maintain acceptable cleanliness standards.

3. Personal Appearance

- To help clientele learn to use basic art principles to help coordinate a pleasing wardrobe suited to the individual's life style.

C. Expected Results

1. Clothing Alternatives

60% of county clientele who are involved in clothing alternatives programs to use some of the prescribed management principles to plan, acquite or construct, maintain, and refurbish individual and/or family clothing.

2. Energy Conservation

25,000 of county clientele to cut down their thermostats in winter and turn up ther thermostats in summer as a result of using climate-control dressing. Estimated saving 10% on utilities.

25,000 of county clientele to save energy by using efficient laundering procedures.

3. Personal Appearance

10% of county clientele to implement basic techniques on: 1) accessorizing garments; 2) being more graceful; and 3) using aesthetic principles in dress.

FAMILY RESOURCE MANAGEMENT

Narrative Statement

A. Clientele Problems

Rapid changes in our national economy are affecting families in a variety of ways that challenge more effective use of resources for maintaining satisfactory living. Among these changes are continuing increases in the price of goods and services, fluctuating interest rates, increasing unemployment and a low rate of savings by consumers. It is a time for cautious planning and productive use of resources by individuals and families.

County Extension Home Economics Arents report that major clientele problems are associated with the impact of inflation. The most frequently mentioned needs for educational assistance, with number of counties reporting, included: money management (57); inflation coping (36), shopping skills (24), use of credit (24), estate planning (23), energy conservation (22), alternative uses of resources (18), and savings and investments (15).

Other topics listed less often included: general management skills, retirement planning, time management, setting priorities, and insurance. All of the problem areas relate to, or encompass, learning needs identified in the long-range 4-Sight Program. Audiences identified as needing special educational assistance included: the elderly with limited incomes, youth and young adults who have little experience in money management, employed homemakers under pressures of home and the job, and families experiencing changes and financial pressures caused by crises.

B. Objective

The overall objective of the Family Resource Management educational program will be to teach individuals and/or family members to use total resources to more effectively cope with inflation and to solve and prevent other financial and consumer problems by: (1) budgeting financial resources for present and future financial goals, and (2) using money and other resources to provide for consumption with the least investment.

C. Expected Results

In addition to creating an awareness of a need for information and where to get it, several clientele behavioral changes are expected to result from the program learning experiences provided. These clientele actions should include numerous individuals and families:

- Making and following a spending plan
- Establishing a system for record keeping
- Increasing savings and net worth
- Improving or establishing insurance plans

- Reducing credit charges
- Improving shopping habits
- Making provisions for final services
- Making or up-dating estate plan
- Adopting economical transportation practices
- Making plans for retirement finances

D. Pilot Projects

Two home study courses will be introduced to clientele this year:

(1) "Women and the Law". The objective of this course is to alert married women to potential legal and economic problems that may affect them should they have to assume full responsibility for themselves and other family members as in cases of divorce or widowhood.

(2) "Teaching Children About Money, a Guide for Parents and Adults". The objective of this course is to encourage parents and adults responsible for the care of children to teach basic money management skills to each child according to his/her age and learning ability.

E. Innovative Approaches

Four programs will be added to the computer and programmable calculator library for clientele use. These programs are:

(1) "Debt Management" which will analyze the debt situation of a client and aid the client in planning the most advantageous system for re-paying the debt load.

(2) "Planning Adequate Finances for Retirement" which will enable the client to project financial needs for retirement and to analyze the adequate the adequacy of present provisions for retirement.

(3) "Life Insurance Program" which will enable the client to evaluate adequacy of financial assets and identify needs for life insurance.

(4) "Estate Planning" which will be adapted from South Carolina's program and will aim toward providing an evaluation of an individual's current estate plan and providing planning alternatives relative to death taxes, administrative costs, and distribution of property.

FOODS AND NUTRITION

Situational Statement

Rising unemployment and double digit inflation make wise food choices critical for many North Carolina families. They are looking for help in feeding nutritious meals using as little money as possible.

Home preservation of food continues to be a major concern as families endeavor to decrease food costs. Current research shows that 60% of North Carolina residents in the Western Region, 34% in the Piedmont, and 26% in the Coastal Plains do home canning. A recent survey showed that only 2% used correct methods for all food products they canned.

Emphasis on food safety needs to be intensified as food preservation increases. The rising cost of energy is leading to questionable energy conservation practices where food safety is concerned.

People of all income levels often are unaware of nutrition-dense foods. People with dietary modifications seek help from Extension because of a lack of available services elsewhere. Despite a high interest in nutrition, some people are unaware of the make-up of a balanced diet and the dangers of dietary excesses. Preventive nutrition should start early in life.

North Carolina continues to rank high among states in infant mortality rates. Nutrition plays a vital role during pregnancy, influencing both the mental and physical status of the new born. Mothers are usually motivated to learn about nutrition at this time and may become interested in improving the diets of all family members. Parents need information on how to feed infants and children since good nutrition at an early age is essential for good health later. Extension has the opportunity to reach many young parents, the majority of whom are not being reached by other agencies.

These concerns do not differ greatly from those problems cited in 4-Sight. They continue to be primary concerns of counties.

Objectives

Food and Nutrition staff members plan to work on the following objectives:

1) Development of a series of lessons on food buying for use with low income families, EFNEP in particular.

2) Development of audio and self-instructional materials on modified diets to be made available for loan to individuals.

3) Preparation of materials specifically geared to the working woman. These will include meal planning and preparation with limited time involvement.

4) Development of materials and video tapes for agent training in food preservation, and for use by clients.

5) Direct assistance to the public through the mdeia, Tele-tip, and special interest programs.

6) Preparation of "health awareness" materials such as diet-drug inter-relationships

7) Assistance to county home economists in planning programs for pregnant and lactating women and parents of infants and young children.

8) Development of lessons, materials and activities for 4-H and EFNEP youth in the area of preventive nutrition.

Expected Results (Partial List)

1) 10% increase in Tele-tip calls for best food buys and recipes.

2) 2000 low income families to be taught how to save 10 - 15% on their food budgets.

3) 200 people to use self-instructional materials regarding modified diets.

4) 1000 working women to be reached with news articles regarding foods and food preparation.

5) 50,000 families to learn safe food practices.

6) 30 counties to provide classes for pregnant and lactating women and parents of young children.

7) Homemakers in 75 counties to have a better understanding of how food relates to their health.

8) EFNEP and 4-H youth in 30 counties to learn how food relates to their health.

GERONTOLOGY

A. Problem Situation

Extension Advisory Committees in 53 counties identified lack of understanding about true facts of aging as a problem resulting in fear of normal aging and negative attitudes toward elder members of the community. Many elders lack acceptance, involvement and status in the community, hence develop low self-esteem and often present a poor image which worsens the situation.

In 26 counties, the planning committees found that some elders lack understanding and emotional support from their families. Adult children often find coping with elder parents a problem which they are unprepared to handle. Youth of the community are also concerned.

Many senior adults, according to 57 county statements lack both the opportunity within the community structure as well as the skill and confidence within themselves to become involved in enriching the quality of their later years.

Fifty county extension committees stated that adjusting to changes in lifestyle, decisions, habits, living arrangements, are major problems as family members age and family structure changes. There are sensory changes and mobility changes requiring adaptation in communication skills and safety improvements in the home.

The family structure changes as children move away, the spouse dies and the health condition of the elder changes. The largest group of one-person households is in this age group. Coupled with this situation is often a lack of transportation which increases isolation. The disproportion of women to men also contributes to loneliness.

One-third of the 750,000 older North Carolinians exist on very inadequate incomes, hence "inflation coping" is very difficult for them.

The very elderly have the lowest educational level and most complicated health problems of any group as well as the lowest income. Thirty-three county extension committees stated that lack of management skills and knowledge hampered the elderly's ability to cope with inflation on a fixed income.

Senior families lack awareness of community services and educational resources to help manage more adequately according to 14 counties.

Planning for retirement was identified by 17 counties as a way to reduce problems in the future.

B. Objectives

1. To help family and community members of all ages understand normal aging changes, specific needs and adjustments to changes so they may cope more positively with the problems related to normal aging.

2. To help families improve the needed emotional support and exchange of services between generations in order that each generation may gain the best that each has to give.

3. To help older adults both active and fragile, to continue developing self-actualization in satisfying educational and cultural experiences.

4. To help the young-old develop a higher level of self-reliance management skills and the old-old to attain the maximum level of self-maintenance skills according to individual inflation coping.

5. To help in the development of and the referral to supportive community services that will aid older adults in maintaining a maximum degree of independence.

6. To help senior adults continue preventive health maintenance, help elders develop adaptive attitude and skills to live with poor health and disabilities and the family to insist on adequate health care of elder members.

7. To help adults plan and prepare for personal adjustment to retirement to reduce or prevent problems in future years.

C. Strategy

Develop background material on adjusting to aging changes and losses.

Develop retirement self-study packet.

Revise "Youth Looks at Aging"

Develop more appropriate communication techniques for the older audience.

D. Expected Results

1. Families in 53 counties will study about aging changes and the needs of elders in their communities. Agents in 35 counties project 6,200 families will improve understanding and develop more positive attitudes.

2. (a) An Estimated 7,600 senior families in 38 counties will make adjustments in lifestyle and habits due to extension information on vision aids, hearing helps, safety practices.

(b) An estimated 3,500 senior adults in 31 counties will make emotional adjustments, physical changes and business arrangements due to loss of spouse, loss of health, or other loss.

3. 3,300 senior adults in 20 counties will be helped to develop a more purposeful and enriched life.

4. (a) 6,600 "young-old" senior adults in 33 counties will be helped to develop a higher level of management skills to cope with inflation more successfully.

(b) 2,800 elderly to attain a maximum level of self-maintenance management skills according to individual, to cope with inflation.

(c) 2,200 elders and families in 14 counties are expected to use community supportive services to help maintain a high degree of independence and reduce cost of institutional care.

5. (a) 9,000 senior adults to continue preventive health maintenance to combat inflationary medical costs.

(b) 2,350 elders to learn adaptive attitude and skills in living with poor health and disabilities, with extension information.

(c) 2,500 families to learn and make decisions about adequate health care for elders.

6. 3,400 families in 17 counties to learn about, plan and prepare for better personal adjustment.

HOUSING, HOME FURNISHINGS AND CREATIVE CRAFTS

Narrative Statement

A. Housing and Home Furnishings

Adequate shelter is one of the basic necessities of life. Access to adequate affordable housing in a suitable living environment is a major problem facing individuals and families in North Carolina. Adequate housing is essential to the health, comfort, and well being of people. The home environment affects the mental, physical, and emotional growth of every family member.

Many individuals and families live in substandard housing. A disproportionate amount of poor housing exists in the rural areas of the eastern and western counties of North Carolina. Opportunities exist for financial assistance for many families to improve their substandard housing. Money is available for remodeling and improving existing housing. These families need to be aware of the alternatives if they are to improve their quality of life.

Families within the poverty to middle income levels are having difficulty obtaining adequate housing. The increase in cost of building new housing exceeds the rate of inflation. Costs of new house construction in North Carolina now averages approximately $28 - $35 a square foot. This means a house with 1,000 square feet of living space could cost $35,000. Educational programs are needed to help families make wise housing decisions to insure maximum comfort, convenience, satisfaction, and service from their resources.

As the cost of construction continues to spiral due to inflation practices, families are being forced to seek housing alternatives to meet their needs at an affordable level. Knowledge of materials and methods will issure wise buying decisions.

More families in North Carolina are remodeling their present home rather than building new homes. The process of remodeling creates different types of problems. Educational programs are needed to help families incorporate livability.

The energy crunch has caused and will continue to cause changes in both new and used housing. Changes in design, materials, and equipment make new information for the homeowner essential. Extension agents, contractors, builders, and homeowners need to be kept up-to-date regarding recommendations in selection and use of materials for more energy-efficient homes.

With the rapid increase in cost of housing and energy, people will need to evaluate the space they have in their home and how they use it. This will mean an increased demand for assistance to make interior spaces more efficient. In addition, such changes in interior space size may result in new and difficult decorating problems. Functional and aesthetic interiors will be more important to the well being of individuals and families.

Today's home furnishings market offers something for every taste and every pocketbook. With such a variety to choose from, it is imperative that families be competent in buying furnishings for the home.

The rising cost of materials and labor is forcing more people to take up do-it-yourself projects. In such projects, certain skills are necessary to achieve a beautiful and useful finished product. Such products not only save the family money, but also instill pride in the home and its decor.

County advisory groups have met in each county to look at problems and set priorities for problems to be given special emphasis during the 1980-81 year. From these reports 85 percent of the counties indicate coping with inflation as the major problem. Methods to be used to aid families will include activities such as how-to (do-it-yourself) recycling, remodeling and home repairs.

Energy conservation will be priority programs in 83% of counties. Specific programs will include weatherization techniques, new alternatives for heating, window treatments and general conservation of home energy. The need for more information on housing alternatives is seen as the major problem in 31% of the counties. Specific needs are in the areas of solar housing, underground, mobile, as well as remodeling vs new housing.

Creative Crafts

The craft program will continue to emphasize the training of leaders. This seems to be the most effective way to reach people who are interested in learning to make crafts for their own pleasure, for use in the home, for gifts, and for sale. Many families supplement their income through the sale of craft items. North Carolina has many craft shops which welcome the opportunity to sell quality crafts made by North Carolina craftsmen. The tourist industry is a "ready made" market for quality crafts, and this is emphasized in the marketing aspect of the craft program.

The craft program will be carried out through new job designation. Two area specialty agents will be responsible for programs in two areas of the state, one in the western half and one in the eastern half. Programs will be developed and coordinated by the State Specialist in Charge of Housing, Furnishing and Crafts.

B. **Objectives**

1. To develop the competencies of agents in implementing the Housing and Home Furnishing programs.

   Departmental

   a. Conduct major in-service training classes in Housing and Home Furnishings.

   b. Conduct a program planning conference with each new agent.

   c. Support agents with up-to-date information in Housing, Home Furnishings and Creative Crafts via newsletters, correspondence, conferences, meetings, etc.

d. Plan, implement and evaluate Extension program efforts.

e. Continue support for agents with energy conservation information as it relates to housing and furnishings.

f. Work with agents in planning and revising 4-H Home Environment Project.

Housing

a. Support agents in "Your Wood Can Last for Centuries" program develoment and implementation.

b. Support agents in development of County Housing Workshops or Seminars.

c. Expand Mobile Home Newsletter concept to other areas of state.

d. Develop Housing Resource Notebook for county staff use.

Home Furnishings

a. Serve as resource person and support agent in presenting special interest meetings and workshops.

b. Train agents in area of energy labeling as it relates to permanent appliances in the home.

c. Complete teaching outline and program guides for agents to use in area meetings on the following areas:

- Home Security and Safety
- Table Appointments

d. Develop outlines and agent guides for simple repair of home furnishings.

e. Develop outlines and agent guides for do-it-yourself programs and clinics - window treatments, wall coverings, etc.

f. Develop Home Furnishing Resource Notebook for use by county staff.

g. Conduct training program for selected agents on furniture construction - a part of a pilot program.

2. To provide North Carolina families with basic knowledge for effective family decision-making and consumer education through educational programs, mass media and correspondence.

Departmental

a. Provide energy conservation and inflation information via newsletter, correspondence, conferences and educational programs.

b. Participate in county workshops on house planning, renovation, home maintenance, furniture renovation, interior design, kitchen planning, storage, etc.

c. Encourage counties to participate in demonstration house activities.

Housing

a. Provide up-dated storage and kitchen planning aids and publications.

b. Provide materials and teaching aids on Simple Home Repairs.

c. Provide materials and teaching aids on Housing Alternatives.

d. Provide new publication on Remodeling.

e. Provide information on Elderly Housing.

f. Provide information materials for "Your Wood Can Last for Centuries".

g. Work with North Carolina families on house plans that are space and energy efficient.

Home Furnishings

a. Provide instruction on hand tailored draperies.

b. Provide instructional materials for simple repair of home furnishings.

c. Provide new materials on furnishing the home creatively for less.

d. Provide new up-to-date publication on accessories for the home.

Creative Crafts

a. To continue to improve the quality of creative crafts produced by North Carolina craftsmen involved in Extension Programs.

b. To conduct creative craft workshops organized by area craft agents and taught by craft leaders.

c. To promote craft fairs featuring quality creative crafts to the people of North Carolina.

3. To develop innovative techniques for dissemination of information.

   a. Prepare materials for state-wide public awareness program on "Your Wood Can Last for Centuries".

   b. Prepare housing resource notebooks for county staff.

   c. Prepare home furnishing resource notebooks for county staff.

   d. Video tapes of selected subjects in housing and home furnishings.

   e. Title V Project Needs Assessment, Information Packaging, and Dissemination Strategies for Young Adults in Rural North Carolina. Joint project with UNC-Greensboro research staff.

   f. Participation in the School of Engineering project, "NCSU Solar and Energy Conservation House".

   g. Conduct a pilot study with youth (4-H) to determine effectiveness of educational strategies as they apply to energy conservation.

   h. Conduct a pilot program with a selected group of agents and clientele concerning the effectiveness of an educational program on selecting furniture.

4. To fulfill professional responsibilities to Extension organization and the university.

   a. Home Economics staff meetings and committees.

   b. Liaison responsibilities with agencies and concerned individuals who are involved in state housing, home furnishings and creative crafts problems.

5. To maintain competencies in subject matter as related to job responsibilities.

   a. Professional Associations.

   b. Staff development.

C. Expected Results

1. Approximately 75 percent of the agents with responsibilities in the area of housing, home furnishings, and creative crafts will increase competencies by participation in in-service training. These agents will use the knowledge they have gained during the fiscal year by providing

information to families through mass media, special interest series, Extension Homemakers Clubs, and consultation with individuals.

2. Seventy-five percent of the counties will sponsor housing and/or home furnishings workshops resulting in improved environments within their income ranges.

3. All families and individuals who attend Extension sponsored programs will reduce or continue to reduce their personal energy consumption somewhat, to result in a total energy savings plan.

4. Seventy-five percent of the counties will use the materials from "Your Wood Can Last for Centuries" program to inform and help consumers identify and prevent wood damage in their homes.

5. Approximately 150,000 people will fight inflation and save money in the selection and use of materials and equipment for the home through information provided in newsletters, bulletins, and non face-to-face consultations.

6. Craftsmen will improve standards in crafts they make. Extension agents will improve their appreciation of crafts and their ability to recognize quality crafts. There will be an increase in the participation in the 4-H Craft Demonstration program.

D. **Applied Studies and/or Pilot Efforts**

1. Title V Project Needs Assessment, Information Packaging, and Dissemination Strategies for Youth Adults in Rural North Carolina. Joint Project with UNC-Greensboro research staff.

2. Conduct a pilot study with youth (4-H) to determine effectiveness of educational strategies as they apply to energy conservation.

3. Conduct a pilot program with a selected group of agents and clientele concerning the effectiveness of an educational program on selecting furniture.

E. **Innovative Methods**

1. Video Tape... The Housing and Furnishings Department will develop video teaching tapes concerning subject matter needs in areas.

2. Work on an interdepartmental basis with Forestry and Entomology to develop state-wide program on "Your Wood Can Last for Centuries".

3. Participation in the School of Engineering project "NCSU Solar and Energy Conservation House".

HUMAN DEVELOPMENT

Situational Statement

A. FAMILY STRESS.

1. Some indicators of family stress are:

   a. Inflation. Two 1980 surveys of consumer attitudes by the Institute of Social Research have documented the most pessimistic consumer attitudes and expectations recorded in more than a quarter century (IRS Newsletter, Summer, 1980). Inflation, tight credit conditions, and high interest rates are symptoms of a long-term trend toward a lower standard of living.

   b. Depression. Dr. Bertram S. Brown of the National Institute of Mental Health suggests that 4 to 8 million Americans were depressed at any one time in 1980 and that perhaps 30 percent of all Americans suffer from depression at times. Surveys indicate that stress is increasing, that Americans are more troubled than in past years, and that unhappiness with personal lives, work, and community lives has jumped dramatically during the last two decades.

   c. Suicide. Suicide ranks eleventh among the leading causes of death in the nation, a rate of 12.1 per 100,000. For males aged 15-19 the rate has tripled since 1950.

   d. Summary. Family stress was the third priority among the needs identified by county committees in Human Development subject matter during 1980. Divorce, working mothers, family mobility and less clear values all join to make a stressful situation within families.

2. Objectives.

   a. To help more than 2,000 families in 20 counties to deal more effectively with stress from inside and outside the family group.

   b. To help participant family members to learn how a change of expectations can lower the stress level in families.

3. Expected Results.

   a. More than 2,000 families can be expected to adjust their values and adopt more simple ways of living.

   b. Program participants to learn how to live with stress that cannot be prevented.

4. Innovative Approaches.

   One alternative for teaching lessons on family stress will be a set of cards with an outline for a background paper on the back of the cards. Other teaching approaches will vary from a whole staff effort with mass media coverage and workshop to an exhibit at the N. C. State Fair.

B. COMMUNICATION, FAMILY AND MARRIAGE.

1. Clientele Problem.

In North Carolina there was a 65.3 percent increase in the divorce rate between 1965 and 1975. Marriage has become a relationship in which effective communication is essential. Families have also changed. From places where the members did most of their work, families have become systems in which each member can grow toward maturity. Families try to coordinate the work of their members and to be places of refuge. Members of present-day families need interpersonal skills in order to help meet the emotional needs of each member.

2. Objectives.

Extension home economics programs will attempt to reach over 500 adults in 22 counties and help them to improve their ability to communicate within the family setting.

3. Expected Results.
Over 500 adults can be expected to learn to improve the skills of listening, checking, handling conflict, and decision-making.

4. Unique or Innovative Approaches.
Several county planning groups are considering a "Family Weekend Away," a retreat for total families for the purpose of teaching communication and providing a natural situation of recreation in which to practice what is learned.

C. TEENAGE PREGNANCY AND RELATED PROBLEMS.

1. Clientele Problem.

In 1978 there were 17,335 babies born to women under age 20, including 374 to women under age 15. For almost 5,000 teens (26 percent) the baby was the second or third child. Almost half the total were born out of wedlock. Associated problems are the death rate for infants born to teenagers, teenage mothers receiving Aid to Familes of Dependent Children, sexually transmitted diseases, unwanted children, abortions, and social consequences for the parents.

This problem was second in the list of priorities identified by county Human Development Subcommittees in the spring of 1980 and a significant part of the youth problems identified in 4-Sight.

2. Objectives.

a. In more than 20 counties to help bring public awareness of the nature and extent of this problem.

b. To help bring about a significant reduction in teenage pregnancy in more than 20 counties.

c. To help improve services to teenage expectant mothers and fathers.

3. Expected Results.

a. Professionals and lay persons in more than twenty counties will be made aware of the nature and extent of this problem.

b. The rate of teenage pregnancy can be expected to drop in more than 20 counties.

c. Services to expectant teenagers can be expected to improve in more than 20 counties.

4. Innovative Approaches.

The Human Development Department is cooperating with the Governor's Advocacy Council on Children and Youth and the N. C. Coalition on Early Teenage Pregnancy to:

a. Organize and mail information from time to time.

b. Offer help in promoting local seminars for both lay and professional groups.

c. Help teach values and facts that are known to help young people grow successfully toward maturity.

D. MIDDLE YEARS.

1. Clientele Problem.
North Carolina and the USA are beginning to change from a youth oriented population to a population of more people in the middle years of life. Estimates for 1980 are that 27 percent of North Carolina's population will be between the ages of 40 and 65, approximately 1,500,000. In a society that puts great value upon youth these adults need help in coping with concerns such as: 1) Declining strength during peek years of occupational responsibility, 2) Financial and emotional strain related to aging parents, 3) Personal and family development that force changes in values. A great many members of Extension Homemaker Clubs are part of this age group.

2. Objectives.

   a. To provide at least 1,000 mid-life citizens in ten counties the opportunity to reflect on the experience of middle age.

   b. To help mid-life citizens to be better prepared for the years of retirement.

3. Expected Results.

   At least 1,000 mid-life citizens in ten counties can be expected to take advantage of the opportunity to consider the concerns of mid-life in a group setting and to become better prepared for living successfully during the more mature years of life.

4. Innovative Approach.
A packet of materials has been prepared entitled, "Mid-life Journey" for the use of Extension agents and lay leaders. The leaders may choose from a variety of programs and resource materials.

E. FAMILY POLICIES, PUBLIC AND PRIVATE.

1. Clientele Problem.

Government, business and industry sometimes develop policies without careful consideration of how these policies affect all types of families. The Family Impact Seminar made an analysis that revealed 268 existing programs that have potential or direct impact on families; and 149 programs that have direct impact on families.

During 1980 North Carolina representatives took a report of 29 recommendations to the Baltimore White House Conference on Families. That Conference had a total of 60 recommendations and 57 were approved. After the Conferences in Minneapolis and Los Angeles there will be a meeting of one representative from each state. These people will summarize the three reports and issue a final set of recommendations.

For the next two or three years there will be an implied mandate upon the Extension Service to help citizens do follow-up work on the White House Conference recommendations.

2. Objectives.

Educational efforts related to family policies are designed to help participants:

a. Become aware of some policy recommendations made by legislators, educators, and the White House Conference on Families.

b. Become aware of how some public and private policies affect families.

c. Become aware of how some local, state, and national policies can be changed in such a way as to strengthen families.

3. Expected Results.

At least 400 citizens in 15 counties can be expected to become aware and influence family policies related to tax laws, foster care, family income, health insurance, family life education, child care, and divorce laws.

4. Innovative Approaches.
A booklet, The Impact of Policy Decisions on Families, A Guidebook for Agents, was prepared to enable lay people and local professionals to have organized programs. The booklet provides an adequate background study to allow use of the specific programs for youth and adults. Other options are cited to enable leaders to use local resources when they wish.

F. PARENT EDUCATION.

1. Clientele Problem.

The Baby Boom cohort has reached the childbearing age, causing a rise in the birth rate in North Carolina. There is a renewed interest in parent education.

As identified earlier in 4-Sight, 39 County Advisory Committees identified parent education as the top priority problem in human development in the state. Both professional and lay people recognize the need for preventive education in child development and child rearing.

A lack of parenting knowledge has been shown to be a cause of child abuse and neglect in 25% of the cases in North Carolina. Secondly, in times of worsening economy there is a decided increase in the incidence of child abuse and neglect, which is occurring in our state. Thus, a strong parent education program is needed, especially among the economically deprived.

Efforts to reach parents of young children through home study courses and newsletters are proving effective. The Extension Service needs to continue these projects with more counties participating.

2. Objectives.

To provide education for parents regarding child development and child rearing from prenatal through the school age years.

3. Expected Results.

Up to 300 expectant parents attending prenatal classes will gain confidence from new knowledge and in their new roles.

1,000 parents of young children participating in the home study courses or receiving newsletters will indicate knowledge gained and parental competence increased.

15 agents participating in in-service training will show a greater degree of competence and will develop more quality programs in parent education in their county.

4. Since efforts to obtain research funds have not been successful, a telephone survey will be made of county personnel and parents involved in the home study courses to determine satisfaction with the program as presently offered. Guidelines will be adapted accordingly.

G. CHANGING FAMILIES.

1. Clientele Problems.

The North Carolina Agricultural Extension Service recognizes that not all families reflect the stereotypes of the nuclear family with husband, wife and children.

Nationally, less than 20 percent of all families fit the stereotype nuclear one with father, mother, and two or three children.

The divorce rate in North Carolina continues to increase, showing a rate of 4.7 for the year ending in March, 1979.

Three of every four women and five of every six men who divorce will remarry within an average of three years.

Remarriage more frequently involves children in stepfamilies. This is an area about which little is known. There is almost no research on the subject and professional counselors have little to guide them in working with stepfamilies.

In 1979 almost one of every five families with children under 18 years of age was maintained by a single parent - divorced, separated, widowed or never married - compared with 1 of 9 in 1970, four tenths of which live in poverty.

2. Objectives.

Agents to teach through organized programs and the mass media that now all families are, or have to be, nuclear in structure.

Agents to offer information about human development and relationships that will help non-nuclear families to function in a more viable manner.

3. Expected Results.

In at least 12 counties the general public will recognize and accept that not all families are, or have to be, nuclear in structure.

Four hundred families involved in divorce, stepparenting and singleparenting will receive information about human development and relationships that will help the family to function in a viable manner.

4. Pilot Efforts.

In February, 1980, the Human Development State Specialists held a model conference on stepfamilies to which the professionals in the area were invited. The results of this conference indicated that, although there is practically no research on the subject, the practitioners are accumulating some observations about stepfamilies and how they function that would be useful to others involved.

5. Unique Approaches.

Agents from throughout the state who attended the moden conference have volunteered to sponsor regional conferences for professional and/or lay people interested in stepfamilies. Approximately 12 are planned for the coming year.

H. CHILD CARE.

1. Clientele Problems.

In North Carolina one of every two women is working outside the home. About two of every five poor children under six years of age have a working mother. North Carolina also has the highest percentage of husband/wife workers of any state in the nation. One the other hand, in family income the state ranks among the lowest. The data indicate the families who need child care services cannot afford to pay the cost.

With the reduction of federally supported day care center spaces, an effort must be made to develop alternative quality child care arrangements. In North Carolina, especially the rural areas, it seems feasible to encourage the establishment of more day care homes, which care for up to six children in a home environment. At the present time no agency is working to recruit or train this group of child care workers. Typically, they do not have formal training in child care.

2. Objectives.

Day care homes for children to be increased, quantitatively and qualitatively.

3. Expected Results.

25 agents to offer through planned programs and the mass media information about the establishment and operation of quality day care homes for young children.

About 3,000 child day care home operators to receive elementary training in the operation of a quality day care home.

4. Pilot Efforts and Innovative Approaches.

Several years ago a newsletter for day care home operators was piloted with the joint efforts of the Agricultural Extension Service and the North Carolina Office for Day Care Licensing. After one issue the plan was aborted when the representatives in both agencies left their jobs. A second attempt will be made to mail to day care home operators a quarterly newsletter which will include information about child development and programming. The same agencies will cooperate in this effort. The newsletter will be prepared by state specialists and distributed by agents who volunteer to participate.

I. ROLES OF MEN AND WOMEN.

1. Clientele Problems.

Living in one of the most rural states in the nation, many North Carolinians still hold traditional views of the roles of men and women in the home and society. However, the high incidence of single parent families and dual-income married couples show that men and women are, in fact, assuming nontraditional tasks in home and community. During the 4-Sight years, agents have held programs for youth in this area and a number of counties have offered leader-led programs for older women on the subject of changing roles. Women who have studied about changing roles have indicated the need for more information in improving their image of themselves and their roles in life.

2. Objectives.

To provide education for men, women and children concerning changing roles.

To provide education for women concerning improving their self-image.

3. Expected Results.

Fifteen agents to provide education for men, women and children concerning changing roles and self-image.

4. Pilot Efforts and Innovative Approaches.

Efforts will be made to pilot one or two programs designed to aid women in improving their self-image. These may be the retreat type weekend or overnight experiences. It is assumed that other Extension home economics departments will be involved.

PROGRAM COMPONENT 8-EFNEP (ADULT PHASE)

1. Clientele Problem

Slightly more than thirteen percent (13.3) of the state's population is poor. One-third (33.45) percent of the state's black population is poor. Low incomes carry with them poor diets, high risks of illness, limited access to education, information and training. It has been well documented that economically deprived people generally have low-levels of participation in voluntary associations and programs. For many program homemakers, EFNEP is the only educational experience or exposure they are involved in.

Low-income homemakers are very likely to have low-levels of education. Many are functionally illiterate--they cannot read recipes, and they do not have computational skills. Many are ignorant of simple nutrition concepts, and their diets are most likely to be meat, bread, and soft drinks. Many do not know of available resources for which they are eligible, such as, food stamps, well-baby clinics, medicaid, etc.

Some low-income families have food, but do not know how to prepare it in a variety of ways. Others do not have money or food stamps to buy food. Some low-income families know about food stamps, but refuse to apply for them.

2. Objectives

a. To help low-income families, especially those with young children to acquire the knowledge, skills, attitudes, and changed behavior necessary to improve their diets in normal nutrition.

b. To help families know how to avail themselves of the community resources, especially food stamps.

c. To encourage program homemakers to participate in other on-going Extension programs, and to serve as volunteers in 4-H EFNEP.

3. Expected Results

a. Enroll 5,000 new families; and increase the proportion of homemakers being contracted in groups only from the present 11 percent to that of 25 percent.

b. To increase the proportion of food stamp program homemakers from the current level of 53 percent to that of 75 percent.

c. To graduate one-third (around 2500) of the enrolled program homemakers through use of the Progression Model and Behavior Checklist and encourage them to move into on-going Home Economics Extension programs.

d. At least 4,000 low-income homemakers acquire knowledge of basic nutrition requirements for health.

e. At least 4,000 low-income homemakers consume the minimum daily requirements of fruits/vegetables and milk.

f. At least 3,000 low-income homemakers develop greater security and competence in their roles as mother through participation in EFNEP and other educational programs referred to by the aides.

g. At least 4,000 low-income homemakers become greater aware of community resources, programs and services, and, in turn, gain access as needed.

h. At least 5,000 rural low-income homemakers increase home food production and consumption for year-round availability and nutrition adequacy.

i. At least 1,000 low-income homemakers begin participating in community affairs by first becoming adult volunteers in EFNEP.

j. At least 1,000 low-income homemakers obtain employment and/or enroll in a formal educational program as a result of follow-up referrals from EFNEP aides.

PROGRAM COMPONENT 8-EFNEP (YOUTH PHASE)

1. Clientele Problem

Low-income families cannot afford to give their children the opportunities for better health and education needed to improve their lot. For many poor families, 4-H EFNEP is the only educational extracurricula non-school activity participated in by their children.

Born into poverty, many youth in low-income families lack motivation, incentive, and hope. Frequently, they lack self-confidence and self-esteem. Many subsist on poor diets and are undernourished. The School Breakfast Program and/or the National School Lunch Program, in numerous cases, is (are) the only balanced meal(s) some of these children get during the course of a day. More than 90 percent of the state's school-age children of EFNEP families received school lunches last year, according to the Unit Reports. Teenage pregnancy is on the increase, and the infant mortality rate in North Carolina is 19.4 per 1,000 live births--among the highest in the nation.

2. Objectives

a. To provide learning experiences for youth which promote the acquisition of food and nutrition educational concepts.

b. To provide learning experiences which will aid youth in developing self-confidence and self-esteem to enable them to perform intelligently in other social and personal situations.

c. To provide learning experiences that promote interaction understandings, skills and abilities that will enable them to become contributing members of the community.

d. To provide learning experiences designed to develop a positive self-concept and a sense of belonging .

e. To utilize a variety of methods of teaching youth, such as, multi-media, puppets, field trips, skits, role-playing, day camps, workshops, study tours, demonstrations, groups, exhibits, contests, etc.

f. To give special recognition for a job well done.

g. To strengthen and expand the work with 4-H EFNEP through greater involvement of county Extension youth agents and increased utilization of volunteers. Thus, the major thrust here will be training of youth agents to assist with EFNEP, and they will, in turn, train volunteers for this phase of the program.

h. To pre- and post-test youth at the end of the year to determine nutrition knowledge gained; and to determine whether there have been changes in their attitudes and aspirations, and self-images.

3. Expected Results

1. Noticeable increase in self-confidence and desire to pursue non-nutrition knowledge. At least 2,000 youth move into on-going 4-H program activities.

2. Marked emergence of teen leadership. At least 500 new EFNEP youth serving as teen volunteers in the program.

3. Increase the current proportion of enrolled youth 14 years and over from 25 percent to 35 percent.

4. Increase the current proportion of white youth enrolled in the program from 30 percent to at least 40 percent.

5. At least double the number of volunteers working with youth in each county. (Current state average is 23 per county).

6. Increased nutrition knowledge and improved dietary practices of at least 10,000 youth.

7. Positive interaction between youth in competitive and non-competitive activities during EFNEP learning experiences.

PLAN OF WORK
1980-81

4-H IN NORTH CAROLINA

1. The goal of 4-H is to assist youth and adults in meeting the basic needs, developmental tasks, and essential life skills through planned "learning by doing" experiences. A necessary corollary of the youth development goal is the development of volunteers as individuals and leaders in the 4-H program.

2. 4-H is one of four educational programs of the North Carolina Agricultural Extension Service involving youth and adults. 4-H is -

   a. informal and out of school,
   b. community based and locally determined programs,
   c. primarily group focused and family oriented,
   d. volunteer operated, and
   e. supervised by professional staff.

3. 4-H uses knowledge as a means of meeting basic and developmental needs and acquiring essential life skills.

   a. 4-H emphasizes subject matter related projects and activities using Extension and land-grant university resources.
   b. 4-H structures the learning environment using knowledge from the social and behavioral sciences and the humanities to promote the acquisition of life skills.
   c. The mix of subject matter and educational methods in a democratic environment provides for the personal development process.

4. 4-H is operated by volunteers under the supervision of a professional Extension staff.

   a. Some volunteers use subject matter as their orientation to interacting with youth and adults in 4-H.
   b. Other volunteers structure groups and learning experiences for youth using the social and behavioral sciences.
   c. And, other volunteers render services in support of individual 4-H'ers and the 4-H program in general.
   d. Professional Extension staff members teach volunteers to use subject matter, educational methods, and the democratic process to achieve human development objectives.

5. 4-H is publicly supported by county, state, and federal government. Private resources, both human and material, are used to enrich the learning experience of youth and adults.

PROGRAM COMPONENTS:

04 SWINE
06 SEAFOOD
07 WILDLIFE
08 OTHER ANIMALS
26 HOUSING
27 HUMAN DEVELOPMENT
28 RESOURCE MANAGEMENT
30 GENERAL HOME ECONOMICS
35 BEEKEEPING
36 CHRISTMAS TREES

a. Clientele Problems

Today's young people grow up in a ever increasing complex world. The growth of technology, the creation of large social structures, the mobility of population, and the changing nature of youth socialization create new needs and responses among the young. To further complicate matters, there is a growing recognition of the desirability to preserve differing cultures, to provide for individual differences, and plan for stages and phases in human development.

Young people do not grow and develop in a vacuum. The youth development process requires that learning activities be coupled with the maturational level of the youth. Furthermore, learning activities that are of interest to youth or those that have the potential of meeting their needs are the basis for a volunteer program as they will be sought by youth. This simple model is compounded by youth living in a wide range of cultures, social situations and economic circumstances. Thus, programming to involve youth is inherently interesting developmental programs is a challenge that requires a broad and flexible curriculum.

The complexity of the today's world and the diversity of the youth population necessitates a broad and flexible program but one that has a focus sharp enough to assist youth in developing skills for living. A broadly based subject matter flexible enough to be tailored to individual needs and interests can be programmed to focus on life skills such as becoming self-reliant, learning how to learn and use knowledge, relating to change and helping and sharing with others.

b. Extension Objectives

(1) Emphasize subject matter related projects as a means of meeting the developmental needs and essential life skills among participating youth.
(2) Use the newly established curriculum development system to assure a quality subject matter program in fifty or more project areas.
(3) 4-H youth to conduct 175,000 4-H projects using the subject matter of Extension and the land-grant university system.
(4) 125,000 youth to acquire essential "life skills" through participation in 4-H and the conduct of 4-H projects.

c. Expected Results

(1) All subject matter departments with 4-H assigned specialist staff to have a specific plan for the use of their subject matter in 4-H.
(2) Maintain fifty or more areas of 4-H projects with current instructional materials.
(3) Youth to use the university subject matter base in the conduct of 175,000 projects and activities.
(4) 125,000 youth to plan, implement and evaluate their 4-H project and/or program.

d. Applied Studies/Pilot Efforts

(1) The 4-H Curriculum Development Process is a three year pilot effort. A handbook on the process is available.
(2) Subject matter specialists to conduct a pilot training program with 4-H and subject matter agents on 4-H project promotion.
(3) Implement, on a trial basis, the subject matter specialist and 4-H specialist role and responsibility statement developed by joint specialist committee.

01. BEEF

a. Clientele Problems

There is a need for continued emphasis with increased intensity on all phases of youth work in the meat/animal program. Young people need to be given training as future industry leaders and acquire an appreciation for the beef industry.

b. Extension Objectives

(1) 4-H members to learn production and management practice through actual use in 4-H livestock project.
(2) To recruit and train adult leaders in the livestock project area.
(3) To train 4-H members in the individual appraisal of meat/animals and to state their reasons for ranking animals by this method.

c. Expected Results

(1) An increase in participating in 4-H livestock projects and activities.
(2) An increase in the number of volunteer adult leaders participating in the livestock program.

d. Innovative Approaches

The use of a slide-tape program to acquaint volunteer leaders with the variety of projects and activities in the animal science area.

02. 4-H DAIRY

a. Clientele Problems

The participation in 4-H Dairy was 2,000 in 1979. Participation in dairy tours, the 4-H poster contest, the 4-H dairy bowl, 4-H showing, and dairy judging events are some of the primary means of participation. However, the 4-H dairy tours and 4-H dairy poster contests appeal to a larger share of the 2,000 participants.

b. Extension Objectives

(1) To provide youth, leaders and agents instruction in dairy technology other than showing and selection.
(2) To provide youth, leaders and agents instruction in dairy cattle showing and selection.
(3) To update and implement use of the 4-H literature.
(4) To assist agents and leaders in planning and conducting programs which compliment the 4-H dairy program.

c. Expected Results

(1) Youth to demonstrate efficiency of production in animal reproduction through control of mastitis.
(2) More subject matter agents involved with leader training as well as with the projects and activities.

d. Innovative Approaches

(1) Implement dairy project exercises which have been prepared for youth to gain knowledge and skill in dairy production and management.

03. HORSE

a. Clientele Problems

The economic conditions and energy supply continue to take their toll in 4-H horse numbers; however, it has not slowed the interest and enthusiasm of young girls and boys in their horses. Many horsemen are continuing to experience nutritional problems relating to compromises being made in economizing their feed costs. Many youngsters do not have horses; therefore, horse activities which do not require horses will be stressed. There is also a need to increase the formal 4-H recreational use of the horse by conducting pleasure trail rides and camping trips. This program will be expanded and promoted throughout the state, since energy prices are reducing show participation. A club member with a low priced horse may compete and enjoy their projects.

b. Extension Objectives

(1) Train 4-H club members in the visual appraisal of horses and to state their reasons for ranking horses by this method.

(2) Develop and promote the initiation of a handicapped riding program in 4-H.

(3) Teach youth the proper show procedures and training techniques for use with their project horses at area clinics and horsemanship camps.

(4) Encourage the development of trail rides and packing trips, using horses by 4-H members.

(5) Make families aware of the recreational potential and educational opportunities in conducting trail rides.

c. Expected Results

An increase in 4-H participation due to 4-H'ers without horses becoming involved in every aspect of the horse program.

d. Innovative Approaches

The use of a slide-tape program showing the varied projects and activities in the horse program. Also the use of videotapes as a means of teaching youth and volunteers the basics of horse judging.

05. POULTRY

a. Clientele Problems

The economic impact and wide scope of the poultry industry in North Carolina makes it imperative to acquaint youth with career opportunities in poultry or one of its related fields. Many young people do not realize the highly technical skills and training necessary to function in this area; therefore, educational efforts should be provided to acquaint them. A number of science oriented projects such as incubation and embryology have been developed for use by youth and are presently being utilized by many schools and 4-H members. Additional activities and exercises are needed.

b. The Extension Objectives

(1) To provide 4-H agents, leaders and veterinarians with the information to obtain more participation in poultry and veterinary science projects and programs.

(2) To increase the participation in 4-H poultry activities and events.

c. Expected Results

A new youth division in poultry will be added at the North Carolina State Fair through the efforts of Extension and Poultry Science Department.

18. FORESTRY

a. Clientele Problems

The constantly increasing consumer demand for timber products, habitat, outdoor recreation opportunities, and water and soil resources demands an educated and alert public. There still persists a widepsread philosophy of mining rather than managing our forest resources. We must reach our youth with the conservation message so they can become wise "managers" of North Carolina natural resources.

b. Extension Objectives:

(1) Increased production of timber products complimented by efficient multiple use management.
(2) Outdoor forest recreation will center on the forest user audience.
(3) Wildlife and game mangement aspects of forest resources will be disseminated through 4-H youth camps, demonstrations and projects.

c. Expected Results:

(1) Increase by 10 percent the numbers of youth involved in forestry and wildlife projects and demonstrations.
(2) New wildlife project materials and new national forestry project literature introduced in North Carolina.
(3) Use of new materials in 4-H camps and 4-H wildlife project clubs as well as by 4-H community clubs.

20. VEGETABLES
21. ORNAMENTALS, FLOWERS, LANDSCAPING
22. OTHER HORTICULTURAL CROPS

a. Clientele Problems

In a largely urban and suburban society there is a concern that youth develop an understanding and appreciation of crop science. It is essential that a link to the land be maintained. The land provides our food and fiber and a basic knowledge of plant science and soil fertility is important.

b. Extension Objectives

(1) Increase 4-H involvement in environmental beautification projects and home vegetable gardens.
(2) Promote 4-H demonstrations and projects.
(3) Promote 4-H involvement in the National Junior Horticultural Association.

c. Expected Results

Increase 4-H enrollment in the crop science by 10 percent.

24. 4-H FOODS AND NUTRITION

a. Clientele Problems

Volunteer leaders are a vital part of the State 4-H Program. Orientation and assistance in working with youth and subject matter prepares the volunteer leader for this challenge. The objective of the 4-H Nutrition Coordinators Forum was to prepare participants to work with other volunteer 4-H leaders to:

(1) make food and nutrition fun
(2) identify and utilize community resources
(3) be a more effective leader in teaching foods and nutrition
(4) help 4-H'ers identify what they want to know, how they want to learn it, and how much they want to learn.

The Forum, attended by volunteer leaders and foods and nutrition Extension agents, was planned, organized and executed by-in-large by volunteer leaders. Leaders teaching leaders was one purpose of the Forum. Attending special workshops, participating in activities, and reviewing subject matter visuals, the participants were prepared at the close of the Forum to formulate short term county plans.

b. Extension Objectives

(1) Encourage county training for local volunteer foods and nutrition leaders.
(2) Stimulate district and cross-county sharing by Forum participants with other volunteers.
(3) Enlist adult volunteer leadership in community club programs.

c. Expected Results

(1) More volunteer 4-H leaders trained in foods and nutrition.
(2) Greater interest in foods and nutrition programming.
(3) More food and nutrition volunteers in local units.

25. CLOTHING AND TEXTILES

a. Clientele Problems

The Clothing Department strives to develop leadership and sharing of knowledge among 4-H'ers. Also, agents are encouraged to utilize 4-H'ers expertise in teaching sewing workshops to younger 4-H'ers, in presenting demonstrations, in developing programs, visuals and other learning aids. A by-product of this involvement is the achievement and recognition 4-H'ers may receive to meet their basic needs and developmental tasks.

b. Extension Objectives

(1) Introduce new 4-H Clothing Project materials that reflect a comprehensive approach--incorporating construction, wardrobe planning, textiles and selection.
(2) Develop leadership among 4-H'ers in the Clothing Program.
(3) Provide educational experiences beyond the county level for 4-H'ers in the Clothing Program.

c. Expected Results

(1) New clothing project materials used throughout the state.
(2) An increased number of youth to experience leadership through clothing.
(3) Youth to have special experiences--clothing camp (85 youth and 25 leaders), Back-to-School Sewing Contest (150 youth) and State Fashion Revue (25 youth).

29. AGING

a. Clientele Problems

Due to rapid increase in population and mobility of an industrial society, due to technology and information explosion, the generations are becoming separated from each other, therefore, lacking understanding sensitivity and exchange of experience and perspective.

Anthropologist, Margaret Mead, proposed that we are moving fast toward a society in which youth is the "take-over" generation who will be making the major decisions in the future, rather than their elders. If there are "values" that need to be preserved, youth need contact with the older generations in order to know and to choose the best and most appropriate to carry forward.

In addition, old age and the full cycle of life is frightening to youth, unless observed at close range from loving relative or elder friend.

b. Extension Objectives

(1) Promote understanding and communication between elder and younger generations.

(2) Help youth value experience and perspective of elder generation, thereby helping elders to maintain own self-esteem.

(3) Help youth to develop greater sensitivity to needs of others.

c. Expected Results

(1) 850 youth and other adults to gain greater understanding, improved community and more positive attitudes toward each other.

(2) 400 youth to influence provision of volunteer service for needy elders valued at $12,000.

(3) 350 youth to influence volunteer service performed by alert active senior adults valued at $27,000.

(4) There will be male and female participants as well as equal representation from minority groups according to population.

d. Applied Studies/Pilot Efforts

(1) Davidson County 4-H Agents with assistance from state specialist and adult education professors are training elementary school faculty on "Youth Looks at Aging".

(2) Carteret County senior 4-H'ers are planning and holding a week's camp program with senior adults at Betsy-Jeff Penn.

31 GENERAL 4-H AND YOUTH DEVELOPMENT

4-H Program Development

a. Clientele Problems

The 4-H program belongs to the people. The citizens of the State of North Carolina, in cooperation with the citizens of other states, provide public funds to support 4-H. These same citizens are users of the 4-H program to support the education and development of their children. As owners and consumers of 4-H, they have the right of program determination within the competencies of the staff and the resources of the university made available with the funds they provide.

The people have a sense of ownership for the programs and structures they help to develop. The assurance that citizens can exercise their right of ownership and enjoy a sense of proprietorship can be accomplished through the development and implementation of three structures at the county level.

(1) A county 4-H council will assure that youth have an opportunity to make inputs into the 4-H program and coordinate the activities of their local units.

(2) A 4-H leaders association will provide an opportunity for volunteers to identify their leadership development needs and plan programs to meet them.

(3) A 4-H and youth committee with representation from the 4-H council, the 4-H leaders association and the community at-large can represent the entire county and identify the needs of youth that are within the scope of the 4-H program.

b. Extension Objectives

(1) To instruct staff in the organization and functioning of community 4-H clubs, project clubs, and special interest groups.

(2) To have a functioning 4-H and youth committee in 90 percent of the counties.

(3) To have a representative 4-H council in 100 percent of the counties.

(4) To have a 4-H Leaders' Association active in 80 percent of counties.

c. Expected Results

(1) All of 4-H agents to be competent in the organization and functioning of learning units.

(2) Ninety percent of the counties to have a functioning youth committee.

(3) One hundred percent of the counties to have an operational representative 4-H council.

(4) Eighty percent of the counties to have an active 4-H Leaders' Association.

d. Unique or Innovative Approaches

Use videotape recordings as a teaching tool to help program development groups learn how to assess youth needs.

EXTENSION 4-H AGENTS

a. Clientele Problems

The success of the 4-H program depends on the development of a competent professional staff. In staff development, emphasis is placed on orientation, induction and in-service training for 4-H agents. Analysis of personnel data indicates that over one-third of the 4-H agents in the state leave their position during the first twelve months on the job. Because of this turnover and the changing nature of society, Extension must continue to establish staff development as a top priority.

4-H agents need to understand the philosophy and objectives of 4-H; delivery modes; volunteer leadership development; how to work with councils, boards and committees; development of 4-H curriculum; management of support for 4-H and evaluation and accountability to effectively operate a countywide 4-H program.

b. Extension Objectives

(1) 4-H agents to gain an understanding of a unified philosophy of 4-H.

(2) 4-H agents to be able to meet the developmental needs of youth through 4-H learning opportunities.

(3) 4-H agents to be skillful in organizing learning units and managing 4-H volunteers.

(4) 4-H agents to conceptualize and operationalize the five components of a 4-H program--program development, curriculum development, leadership development, program support and evaluation and accountability.

c. Expected Results

(1) All new 4-H agents complete the four phases of orientation and induction training within the first year of employment.

(2) Eighty percent of all 4-H agents to attend five days of in-service training.

d. Unique or Innovative Approaches

(1) Implement a one-week, two tract training program for all 4-H agents.

4-H PROGRAM ASSISTANTS

a. Clientele Problems

4-H program assistants were employed initially in 1973-74 to expand the 4-H program under legislation from Congress. During the interim years, the 4-H program has expanded considerably and the duties and responsibilities that the 4-H program assistants have assumed varies considerably. Their job description specifies the functions of 4-H unit organization and 4-H unit maintenance as the work categories.

The 4-H Agents' Association and the Federation of Extension organizations has requested that the State 4-H Office conduct a study of the training needs of 4-H program assistants as a basis for training programs. In light of this request and the history of the 4-H program assistant job the position description will be used as a basis for identifying the training needs of 4-H program assistants.

The success of the training program has extensive implications for the opportunities youth will have to participate in 4-H. The 4-H program assistant position is designed as the outreach mechanism in those counties where paraprofessional staff is employed.

b. Extension Objectives

(1) Conduct a study of the competencies needed by 4-H program assistants to fulfill the functions of their job descriptions.
(2) Develop a training program designed to fill the competencies identified as necessary and lacking through the study.
(3) Assure that supervising agents have the supervisory and job related skills necessary to enhance the performance of a 4-H program assistant.

c. Expected Results

(1) A list of important and necessary competencies for the 4-H program assistant position.
(2) 4-H program assistants to be competent in the necessary job competencies.
(3) Supervising 4-H agent to have the competencies necessary to enhance paraprofessional performance.

d. Applied Study/Pilot Efforts

(1) A study of the essential and important competencies for 4-H program assistants.

VOLUNTEER STAFF DEVELOPMENT

a. Clientele Problems

Volunteer involvement continues to be the key to programmatic success in North Carolina 4-H. Present emphasis is on the creation of groups of volunteers to work in support of program development and delivery at local unit levels. The emphasis has been on the generation of specifically identifiable roles in a volunteer leader team which operates in one of two major basic program delivery modes. The community 4-H club and the 4-H project club. In each of these two major delivery modes the staffing model includes the following key roles:

1. Organizational leader/s
2. Project leader/s
3. Activity leader/s
4. Team leader/s
5. Community resource person/s.

The third major program delivery mode also utilizes volunteer staffing but is seen as supportive of the other two major modes. Special interest programming emerges as a result of felt needs to generate new interest areas or to bolster those interests in areas of emerging groups of young people in the county program.

The key needs presently for the volunteer staff in North Carolina are more specific role definition of the volunteer leader team at the unit level, and the generation of support materials for the orientation and in-service training of volunteers.

b. Extension Objectives

(1) Generation of a series of audio-visual/text materials in support of both specialized volunteers and 4-H agents in the recruitment, training, retention, and support of volunteer staff.

(2) Training of all 4-H agents through a five day in-service educators program on the volunteer leadership development materials.

c. Expected Results

(1) An increase in the knowledge for utilization of the two basic delivery modes for 4-H, the 4-H community club and the 4-H project club.

(2) Affirmation of the "multi-leader model" which includes the assumption that units are led by groups of volunteer leaders as the incumbents of specifically identified roles with related role functions.

(3) A closer link between existing 4-H program development processes and the real needs of young people at the community level as a result of improved abilities on the part of rural volunteer staffs to design and execute youth programming in response to the specific needs in their communities.

d. Applied Studies

The training being designed for 4-H professionals would familiarize them with the materials to be developed in the areas of basic volunteer 4-H delivery philosophy, basic delivery mode structure, and basic delivery mode staffing structure and utilization. The materials to be developed in support of this training effort will place an emphasis on the broad range of media types, ranging through printed material, small group table-top flip charts, overhead projection, slide/tape projection, 16 mm film, and TV videotape.

e. Innovative Approaches

(1) The second annual North Carolina Volunteer Leaders Convention has been scheduled for November 1 - 2, 1980, at the McKimmon Center in Raleigh, N. C. A constitution has been designed by a representative committee of North Carolina volunteers and will be voted and/or ratified, a slate of volunteer leader officers will assume office and a North Carolina Volunteer 4-H Leaders' Association will come into existence.

(2) A continuing emphasis for the leader associations is the training and skill improvement of the individual volunteer and the generation of "middle management" type volunteers.

(3) The ongoing training slated for 1980 middle management volunteer emphasis will take the form of teams attending the "Middle Management Tract" conducted at the Southern Region Leaders Forum at Rock Eagle, Georgia.

4-H PROGRAM SUPPORT

a. Clientele Problems

Youth desire involvement in a program of developmental activities. The nature of public funding prohibits the use of these dollars in direct support of activities for young people. Nevertheless, youth activities require resources and these must come from the private sector.

4-H volunteers give of their time but they expect an opportunity for personal development and training for the organizational task. The cost of training activities, beyond those that can be supported from public funds, must be supported from private sources.

Private contributions and public support are enhanced when donors and the general public are informed of the opportunities in and the accomplishments by 4-H.

b. Extension Objectives

(1) Every county to seek private funds in support of 4-H activities and volunteer leadership development.
(2) Fifteen counties to develop a management system as a basis for seeking private support for 4-H.
(3) Forty percent of the counties to have a fund-raising committee or organization.
(4) State-level contributions to 4-H to exceed $100,000.
(5) Every county to have an active publicity, public relations and interpretation program.

c. Expected Results

(1) One hundred counties to seek private support for 4-H.
(2) Fifteen counties to develop a management system.
(3) State contributions to exceed $100,000.
(4) 4-H donors and citizens to be aware of 4-H opportunities and accomplishments.

d. Applied Studies/Pilot Efforts

(1) Fifteen counties to pilot a management system as a basis for seeking resources for 4-H.

ECONOMICS JOBS AND CAREERS

a. Clientele Problems

The need for a youth program in careers was identified by local committees and by the statewide program committees in developing the long-range plan for the North Carolina Agricultural Extension Service in 1976. The need continues to be identified by local committees.

The unemployment rate of blacks and low income young people is persistent. Young people also have limited access to career counciling through the school system due to the lack of guidance counselors at the high schools. Young people in the 4-H program can begin to examine possibilities through 4-H projects and activities.

b. Extension Objectives

(1) To train professional and volunteer staff on how to incorporate a careers program into the ongoing 4-H delivery system.
(2) To develop donor relationship that will enhance the career awareness opportunities of youth.

c. Expected Results

(1) Better relationships in counties between youth and the business community.
(2) Young people to have a better understanding of the opportunities available to them and their skills to capitalize on the opportunities.

d. Applied Studies/Pilot Efforts

New leader career oriented activities for club meetings will be piloted on a volunteer basis statewide in 1980-81.

e. Unique or Innovative Approaches

The program will be introduced to volunteer leaders at their State Leader Convention through a workshop and exhibit situation.

ENERGY

a. Clientele Problems

With energy conservation, possible changes in lifestyles and adjustment to alternative energy sources, the American public should be clamoring for information to broaden their understanding of the energy situation and to make responsible energy decision for their families. Americans, however, tend to be reluctant to change, especially when it involves altering their way of life. In recent years statistics have reflected an apparent disbelief in the danger of running short of energy and point to an urgent need for a strong educational program to support efforts in developing responsible energy programs for the future.

The youth of our country, however, tend to believe more strongly in the seriousness of the energy shortage, perhaps because their future may depend on wise energy decisions being made in the present. In a study conducted at the National 4-H Center in 1977, 4-H youth were asked if they believe in the energy crisis. Ninety-nine percent of the 4-H members participating in the survey indicated they believe an energy crisis was here now or would soon appear and 65 percent felt that the energy crisis was here now and required widespread conservation and changes in lifestyle. Youth not only believe there is an energy crisis, but also that they can do a lot to help. Of this same group of 4-H members, 98 percent felt they could do much to help the situation.

b. Extension Objectives

(1) To explore careers and job opportunities in energy and energy related fields.

(2) Develop leadership abilities, build character, assume citizenship responsibilities and develop self-concepts necessary for assuming roles and being competitive in the job market.

(3) Develop an awareness and basic understanding of the energy situation, future concerns and the important effect energy has on man and his environment.

(4) Accept responsibility for utilizing and promoting energy conservation measures in the home, on the farm and in the community.

(5) Increase awareness, knowledge and understanding of alternative energy sources and their importance now and in the future.

(6) Develop a positive attitude toward needed changes and life styles.

(7) Acquire patterns of living that create a sense of value for an energy efficient lifestyle.

c. Expected Results

(1) More than 50,000 youth will be involved in the energy program.

(2) The exposure and participation of 4-H members in energy education and conservation will be under the leadership of volunteers. Volunteer involvement in the next year will be approximately 5,000.

CAMPING

a. Clientele Problems

4-H camping is a long standing tradition. The goals and objectives of camping programs are more relevant and needed in the 80's than ever before. Youth, whether urban or rural, are far removed from the natural world by today's mechanized society. It is essential that our young people gain an awareness and understanding of our natural resources and the systems that govern them.

Group living experiences, skills for wise use of leisure time, sound nutrition, a sense of fun, the social graces and reflection on one's own place in this world are some of the needs met in part by a camp experience. A week at 4-H camp provides an intense mix of activities and events designed to impact in a positive manner on today's youth. The overall goal of the 4-H camping program is to provide one more step in the human development process built around the "life skills".

b. Extension Objectives

(1) More closely align the camp programs to individual county programs.
(2) Train agents and leaders to better plan and implement camping programs.
(3) Increase participation at all age levels.
(4) Plan a separate program as well as geographic identity for each resident camp.
(5) Continue improvement and maintenance of all physical plants.
(6) Establish a sound fiscal basis for camp operators.
(7) Recruit and train staff with skills backed by certification and subject matter knowledge.
(8) Improve both food and health services at all camp facilities.

c. Expected Results

(1) 75 percent of 4-H agents trained in camp planning and programming.
(2) 10 percent increase in participation of 9-13 year olds, 25 percent increase in teen campers.
(3) Cost per camper per week to remain below $55.
(4) High quality camps with individual program identity.

d. Applied Studies/Pilot Efforts

(1) A pilot program at Millstone 4-H camp based on exposing campers to subject matter through written 4-H project materials was initiated in FY 80 and will be modified and reevaluated in FY 81.
(2) FY 81 will find at least one resident camp in operation from Sunday through Friday rather than Monday through Saturday as has traditionally been the case. This will allow for weekend use.
(3) Planning for two roving camp staffs are being considered. One staff would be responsible for backpacking and canoeing programs and another for initiating day camp programs. Both staffs would work on local requests.

EDUCATION FOR CITIZENSHIP

a. Clientele Problems

"Every man, woman, and child alive today is living in a world in which mankind is faced with the extreme choice between learning to live together as one family and committing genocide on a planetary scale. Neither the human race nor any living member of it can afford to ignore the present human situation. We must cope with it if we are not to destroy ourselves; in order to cope with it we must understand it ... Formal education's minimum task has thus become a big undertaking in our day, and every child will have a strenuous course of formal as well as informal education to run in order to grow up into being an effective citizen of our new world."

Arnold Toynbee

To many Americans citizenship means participating in patriotic rituals, saluting the flag, praising heroes in American history, voting and inculcating love of country. The Citizenship Education Program in North Carolina is designed to provide opportunities for the people to acquire these values -- and much more. The much more includes those things that will enable people to view themselves in a similar situation to the one Toynbee described in the above quote and respond accordingly. The degree to which county personnel delve into these new directions is directly related to the understanding and acceptance of the clientele and fellow staff and the ability of the agent to seek out resources to provide the appropriate learning experiences.

b. Extension Objectives

(1) Study the needs and expectations of 4-H agents and volunteers for citizenship education programming.
(2) Write, review and/or adopt new materials for citizenship education programming.

c. Expected Results

(1) 2,500 youth to participate in citizenship education learning experiences.

4-H FIRE PREVENTION AND CONTROL

a. Clientele Problems

Youth need to learn to care for themselves and others in everyday and emergency situations with respect to fire. The prevention of life threatening and property destroying fires is of great concern to the public and a source of fear for youth.

b. Extension Objectives

(1) Youth to learn the correct methods for preventing and controlling fires.
(2) 4-H'ers to respond appropriately in emergency fire situtions.

c. Expected Results

(1) 4-H Fire Prevention and Control Program to be conducted in 65 counties.
(2) 10,000 youth to participate in the 4-H Fire Prevention and Control Program.

4-H CRIME PREVENTION

a. Clientele Problems

The crime rate in North Carolina has continued to increase in recent years. The central problem is that citizens do not do enough to deny the opportunity criminals have to commit crime. Rural crime in particular is of concern to Extension clientele.

b. Extension Objectives

(1) Youth and adults to take positive steps to prevent crime in the communities.
(2) Introduce new resource materials for use in all counties.
(3) Youth to conduct a community education program in crime prevention.

c. Expected Results

(1) Reduction in rural crimes, especially those related to property in communities where extensive 4-H programs are conducted.
(2) Greater awareness of crime prevention.

d. Applied Studies/Pilot Efforts

(1) Program approved for educational TV on crime prevention.

4-H FIRST AID

a. Clientele Problems

The youth clientele served by 4-H need the knowledge and skills to make decisions about first aid in life situations. It is important that Extension make inputs in this basic life skill area, particularly because first aid can be integrated effectively with other phases of the 4-H program.

b. Extension Objectives

(1) Youth participants to be able to respond appropriately in medical related situations.
(2) Youth participants to be aware of the causes of accidents and injuries.

c. Expected Results

(1) Youth to act appropriately in medical situations and be able to prevent accidents and injuries.
(2) A working relationship with the State Emergency Medical Treatment organizations and State Medical Society.

DRAMATIC ARTS

a. Clientele Problems

Economic trends in the past few years have forced tax supported programs to make budget cuts. The school system in North Carolina have not been immune to this problem. In some communities the first school programs to face budget cuts have been the culturally oriented ones. These reductions have further limited the exposure that North Carolina youths experience in the cultural arts.

The goal of the 4-H program in North Carolina is to assist youth in meeting the basic life needs, developmental tasks, and essential life skills. The emphasis of the program in the past has been in the biological, physical and social sciences. To help meet the basic needs of the total individual, the 4-H program is developing new curricula in the area of the humanities. The 4-H dramatic arts program is the first in the new curricula to be developed.

b. Extension Objectives

(1) To help develop individual creativity, self-confidence, and self-awareness.
(2) To encourage positive group interaction.
(3) To build skills in the area of dramatic arts.
(4) To provide an innovative approach to traditional 4-H projects.

c. Expected Results

(1) The program is targeted to reach 4,000 youths in the next two years. This would require the support of 500 adult and teen leaders.

PLAN OF WORK SUMMARY DATA

FOR

PROFESSIONAL EXTENSION STAFF MEMBERS

FY 1981

PLANNED TIME BY AREA OF EMPHASIS - PROGRAM COMPONENT
FOR 1862 PROFESSIONAL EXTENSION STAFF MEMBERS
N. C. AG. EXTENSION SERVICE
FY 81

	Planned Days	% of Total Planned Time	% of Area of Emphasis Time
AREA OF EMPHASIS: Ag. and Natural Resources	64488	49.58	100.00
Program Components			
Beef	5658	4.35	8.77
Dairy	4120	3.17	6.39
Horses	235	.18	.36
Swine	6697	5.15	10.38
Poultry	2734	2.10	4.24
Seafood	518	.40	.80
Wildlife	613	.47	.95
Other animals	297	.23	.46
Tobacco	5692	4.38	8.83
Corn	3459	2.66	5.36
Cotton	839	.65	1.30
Forage crops	1690	1.30	2.62
Peanuts	980	.75	1.52
Soybeans	2764	2.13	4.29
Grain crops	1267	.97	1.96
Turf	789	.61	1.22
Other crops	119	.09	.18
Forestry	2489	1.91	3.86
Fruit and Nuts	2525	1.94	3.92
Vegetables	4578	3.52	7.10
Ornamentals, flowers, landscaping	3536	2.72	5.48

	Planned Days	% of Total Planned Time	% of Area of Emphasis Time
Other horticultural crops	605	.47	.94
General agriculture	8681	6.67	13.46
Food and Nutrition (Human)	274	.21	.42
Housing	83	.96	.13
Human development	28	.02	.04
Resource Management (family)	10	.01	.02
General 4-H & Youth	128	.10	.20
General CRD	401	.31	.62
General Extension	1136	.87	1.76
Staff development	762	.59	1.18
Beekeeping & Pollination	136	.10	.21
Christmas Trees	469	.36	.73
Urban forestry	172	.13	.27
AREA OF EMPHASIS: CRD	7876	6.06	100.00
Program Components			
Beef	44	.03	.56
Dairy	68	.05	.86
Swine	59	.05	.75
Seafood	10	.01	.13
Tobacco	5	-	.06
Grain crops	13	.01	.17
Forestry	4	-	.05
Vegetables	93	.07	1.18
Ornamentals, flowers, landscaping	239	.18	3.03
General agriculture	301	.23	3.82
Food and Nutrition (Human)	86	.07	1.09

	Planned Days	% of Total Planned Time	% of Area of Emphasis Time
Clothing and textiles	12	.01	.15
Housing	242	.19	3.07
Human development	84	.06	1.07
Resource management (family)	93	.07	1.18
Aging	1	-	.01
General Home Economics	155	.12	1.97
General 4-H and Youth	172	.13	2.18
General CRD	5695	4.38	72.31
General Extension	269	.21	3.41
Staff development	231	.18	2.93
AREA OF EMPHASIS: HOME ECONOMICS	30632	23.55	100.00
Program Components			
Dairy	60	.05	.20
Seafood	10	.01	.03
Forestry	22	.02	.07
Vegetables	195	.15	.64
Ornamentals, flowers, landscaping	211	.16	.69
General agriculture	30	.02	.10
Food and Nutrition (Human)	5974	4.59	19.50
Clothing and textiles	4132	3.18	13.49
Housing	6863	5.28	22.40
Human development	3214	2.47	10.49
Resource management (family)	3755	2.89	12.26
Aging	1639	1.26	5.35
General Home Economics	3921	3.01	12.80

	Planned Days	% of Total Planned Time	% of Area of Emphasis Time
General 4-H and Youth	5	-	.02
General CRD	179	.14	.58
General Extension	293	.23	.96
Staff development	109	.08	.36
Christmas trees	20	.02	.07
AREA OF EMPHASIS: 4-H	22989	17.68	100.00
Program Component			
Beef	60	.05	.26
Dairy	44	.03	.19
Horses	39	.03	.17
Swine	50	.04	.22
Poultry	119	.09	.52
Wildlife	25	.02	.11
Other animals	14	.01	.06
Tobacco	55	.04	.24
Corn	2	-	.01
Forestry	125	.10	.54
Vegetables	10	.01	.04
Ornamentals, flowers, landscaping	11	.01	.05
Other horticultural crops	56	.04	.24
General agricultural	58	.04	.25
Food and Nutrition (Human)	112	.09	.49
Clothing and textiles	294	.23	1.28
Housing	29	.02	.13
Human development	178	.14	.77
Resource management (family)	27	.02	.12

	Planned Days	% of Total Planned Time	% of Area of Emphasis Time
General Home Economics	50	.04	.22
General 4-H and Youth	21364	16.43	92.93
General CRD	105	.08	.46
General Extension	82	.06	.36
Staff development	70	.05	.30
Beekeeping and Pollination	10	.01	.04
AREA OF EMPHASIS: ADMINISTRATION	4077	3.13	100.00
Program Component			
General agriculture	63	.05	1.55
Resource management (family)	35	.03	.86
General Home Economics	15	.01	.37
General CRD	87	.07	2.13
General Extension	2568	1.97	62.99
Staff development	1309	1.01	32.11
GRAND TOTAL	130062	100.00	

PLANNED TIME FOR 1862 PROFESSIONAL STAFF MEMBERS
BY AUDIENCE TYPES
N. C. AG. EXTENSION SERVICE
FY 81

Audience Types	Planned Days	% of Planned Time
Agri-business firms	3822	2.94
Farmer	44895	34.52
Family members	15414	11.85
Homemakers	7677	5.90
Extension homemakers	4259	3.27
Senior citizens	1465	1.13
Handicapped	205	.16
Volunteer leaders (adult)	3361	2.58
Volunteer leaders (Junior/Teen)	357	.27
Volunteer leaders (Adult & Junior)	3429	2.64
Extension citizens committees	2778	2.14
Extension professionals	15381	11.83
Non-Extension professionals	1394	1.07
Extension paraprofessionals	828	.64
4-H members	3368	2.59
EFNEP Youth	113	.09
Other youth	6123	4.71
4-H members and adults	5448	4.19
Adults	6825	5.25
Associations	678	.52
Government agencies	973	.75
Accountability groups	316	.24
Legitimizing groups	948	.73
GRAND TOTAL	130062	100.00

PLANNED TIME BY PROGRAM COMPONENT - SUBJECT
FOR 1862 PROFESSIONAL STAFF MEMBERS
N. C. AG. EXTENSION SERVICE
FY 81

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
PROGRAM COMPONENT: BEEF	5762	4.43	100.00
Subject:			
Animal and plant nutrition	1601	1.23	27.79
Animal and plant diseases	581	.45	10.08
Buildings, structures, & fac.	241	.19	4.18
Cultural practices	435	.33	7.55
Entomology	12	.01	.21
Farm management	643	.49	11.16
Marketing	614	.47	10.66
Pest Mgt. & pesticide education	152	.12	2.64
Selection and breeding	1277	.98	22.16
Weeds	25	.02	.43
Waste disposal & management	75	.06	1.30
Civil Rights & Equal Employment	18	.01	.31
Economics	4	-	.07
Leadership development	10	.01	.17
Organization dev. & maintenance	50	.04	.87
Program planning	5	-	.09
Program support & development	19	.01	.33
PROGRAM COMPONENT: DAIRY	4292	3.30	100.00
Subject:			
Animal & plant nutrition	713	.55	16.61
Animal & plant diseases	508	.39	11.84

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Buildings, structures, & facilities	419	.32	9.76
Cultural practices	312	.24	7.27
Entomology	13	.01	.30
Forest management	10	.01	.23
Farm management	652	.50	15.19
Machinery, equip. & related engin.	5	-	.12
Marketing	23	.02	.54
Pest mgt. & pesticide education	20	.02	.47
Processing	195	.15	4.54
Selection and breeding	657	.51	15.31
Housing	60	.05	1.40
Business & industrial development	36	.03	.84
Waste disposal & management	288	.22	6.71
Energy	15	.01	.35
Leadership development	50	.04	1.17
Organization dev. & maintenance	145	.11	3.38
Other administrative functions	15	.01	.35
Program planning	36	.03	.84
Program support & development	72	.06	1.68
Report preparation	14	.01	.33
Safety	2	-	.05
In-service training	32	.02	.75
PROGRAM COMPONENT: HORSES	274	.21	100.00
Subject:			
Animal and plant nutrition	61	.25	22.26

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Animal and plant diseases	83	.06	30.29
Buildings, structures, & facilities	6	-	2.19
Cultural practices	9	.01	3.28
Entomology	12	.01	4.38
Farm management	22	.02	8.03
Marketing	7	.01	2.55
Selection and breeding	37	.03	13.50
Organization dev. & maintenance	30	.02	10.95
Recreation	7	.01	2.55
PROGRAM COMPONENT: SWINE	6806	5.23	100.00
Subject:			
Animal and plant nutrition	1067	.82	15.68
Animal and plant diseases	1012	.78	14.87
Buildings, structures, & fac.	1023	.79	15.03
Cultural practices	558	.43	8.20
Entomology	12	.01	.18
Farm management	994	.76	14.60
Machinery, equip.,& related eng.	10	.01	.15
Marketing	306	.24	4.50
Pest mgt. & pesticide education	183	.14	2.69
Selection and breeding	1139	.88	16.74
Weeds	15	.01	.22
Cultural arts	15	.01	.22
Community fac. & services	15	.01	.22
Manpower & economic dev.	26	.02	.38

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Waste disposal & management	280	.22	4.11
Economics	25	.02	.37
Energy	43	.03	.63
Environment	18	.01	.26
Leadership development	10	.01	.15
Organization dev. & maintenance	25	.02	.37
Program support & development	30	.02	.44
PROGRAM COMPONENT: POULTRY	2853	2.19	100.00
Subject:			
Animal and Plant Nutrition	371	.29	13.00
Animal and plant diseases	273	.21	9.57
Buildings, structures, & fac.	162	.12	5.68
Cultural practices	143	.11	5.01
Entomology	22	.02	.77
Farm management	679	.52	23.80
Machinery, equip., & related eng.	40	.03	1.40
Marketing	45	.03	1.58
Pest mgt. & pesticide education	477	.37	16.72
Processing	136	.10	4.77
Selection and breeding	107	.08	3.75
Selection and buying	15	.01	.53
Manpower and economic development	36	.03	1.26
Waste disposal and management	179	.14	6.27
Business	6	-	.21
Energy	63	.05	2.21
Environment	15	.01	.53

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Organization dev. & maintenance	15	.01	.53
Program planning	34	.03	1.19
Program support & development	15	.01	.53
Report preparation	17	.01	.60
Safety	3	-	.11
PROGRAM COMPONENT: SEAFOOD	538	.41	100.00
Subject:			
Marine science	153	.12	28.44
Processing	375	.29	69.70
Human nutrition	10	.01	1.86
PROGRAM COMPONENT: WILDLIFE	638	.49	100.00
Subject:			
Cultural practices	5	-	.78
Forest management	288	.22	45.14
Farm management	20	.02	3.13
Pest mgt. & pesticide education	35	.03	5.49
Water	20	.02	3.13
Natural resources	115	.09	18.03
Environment	10	.01	1.57
Program planning	130	.10	20.38
Recreation	15	.01	2.35
PROGRAM COMPONENT: OTHER ANIMALS	311	.24	100.00
Subject:			
Animal and plant nutrition	25	.02	8.04

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Animal and plant diseases	20	.02	6.43
Buildings, structures, & facilities	6	-	1.93
Cultural practices	18	.01	5.79
Entomology	143	.11	45.98
Farm management	32	.02	10.29
Marketing	34	.03	10.93
Pest mgt. & pesticide education	3	-	.96
Organization dev. & maintenance	30	.02	9.65
PROGRAM COMPONENT: TOBACCO	5752	4.42	100.00
Subject:			
Animal and plant nutrition	686	.53	11.93
Animal and plant diseases	1300	1.00	22.60
Buildings, structures, & fac.	38	.03	.66
Cultural practices	1601	1.23	27.83
Entomology	105	.08	1.83
Farm management	219	.16	3.81
Irrigation and drainage	7	.01	.12
Machinery, equip.,& related eng.	80	.06	1.39
Marketing	55	.04	.96
Pest mgt. & pesticide education	1039	.80	18.06
Processing	34	.03	.59
Selection and breeding	91	.07	1.58
Soil	59	.06	1.03
Weeds	128	.10	2.23
Manpower & economic development	12	.01	.21

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Energy	250	.19	4.35
Program support & development	38	.03	.66
In-service training	10	.01	.17
PROGRAM COMPONENT: CORN	3461	2.66	100.00
Subject:			
Animal and plant nutrition	559	.43	16.15
Animal and plant diseases	275	.21	7.95
Cultural practices	786	.60	22.71
Entomology	80	.06	2.31
Farm management	77	.06	2.22
Irrigation and drainage	65	.05	1.88
Machinery, equip.,& related eng.	61	.05	1.76
Marine science	236	.18	6.82
Marketing	42	.03	1.21
Pest mgt. & pesticide education	219	.17	6.33
Selection and breeding	148	.11	4.28
Soil	188	.14	5.43
Weeds	650	.50	18.78
Energy	40	.03	1.16
Organization dev. & maintenance	35	.03	1.01
PROGRAM COMPONENT: COTTON	839	.65	100.00
Subject:			
Animal and plant nutrition	19	.01	2.26
Animal and plant diseases	126	.10	15.02

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Cultural practices	191	.15	22.77
Entomology	20	.02	2.38
Marketing	35	.03	4.17
Pest mgt. & pesticide education	272	.21	32.42
Selection and breeding	70	.05	8.34
Weeds	70	.05	8.34
Program planning	36	.03	4.29
PROGRAM COMPONENT: FORAGE CROPS	1690	1.30	100.00
Subject:			
Animal and plant nutrition	196	.15	11.60
Animal and plant diseases	90	.07	5.33
Cultural practices	838	.64	49.59
Entomology	23	.02	1.36
Farm management	180	.14	10.65
Marine science	10	.01	.59
Marketing	12	.01	.71
Selection and breeding	148	.11	8.76
Soil	4	-	.24
Weeds	33	.03	1.95
Personal growth and development	24	.02	1.42
Report preparation	107	.08	6.33
In-service training	14	.01	.83
Other training	5	-	.30
Orientation training	6	-	.36

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
PROGRAM COMPONENT: PEANUTS	980	.75	100.00
Subject:			
Animal and plant nutrition	104	.08	10.61
Animal and plant diseases	123	.09	12.55
Cultural practices	257	.20	26.22
Entomology	115	.09	11.73
Machinery, equip., & related eng.	36	.03	3.67
Marketing	26	.02	2.65
Pest mgt. & pesticide education	207	.16	21.12
Selection and breeding	53	.04	5.41
Weeds	59	.05	6.02
PROGRAM COMPONENT: SOYBEANS	2764	2.13	100.00
Subject:			
Animal and plant nutrition	456	.35	16.50
Animal and plant diseases	195	.15	7.06
Buildings, structures, & fac.	9	.01	.33
Cultural practices	964	.74	34.88
Entomology	65	.05	2.35
Farm management	108	.08	3.91
Machinery, equip., & related eng.	38	.03	1.37
Marketing	56	.04	2.03
Pest mgt. & pesticide education	353	.27	12.77
Selection and breeding	92	.07	3.33
Soil	65	.05	2.35

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Weeds	322	.25	11.65
Communication skills	10	.01	.36
Economics	1	-	.04
Extension organization & policy	30	.02	1.09
PROGRAM COMPONENT: GRAIN CROPS	1280	.98	100.00
Subject:			
Animal and plant nutrition	350	.27	27.34
Animal and plant diseases	146	.11	11.41
Buildings, structures, & facilities	9	.01	.70
Cultural practices	361	.28	28.20
Entomology	25	.02	1.95
Farm management	3	-	.23
Machinery, equipment, & related eng.	33	.03	2.58
Marketing	101	.08	7.89
Pest mgt. & pesticide education	52	.04	4.06
Selection and breeding	60	.05	4.69
Weeds	83	.06	6.48
Energy	55	.04	4.30
Safety	2	-	.16
PROGRAM COMPONENT: TURF	789	.61	100.00
Subject:			
Animal and plant nutrition	109	.08	13.82
Animal and plant diseases	134	.10	16.98
Cultural practices	301	.23	38.15
Entomology	68	.05	8.62

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Pest mgt. & pesticide education	70	.05	8.87
Selection and breeding	7	.01	.89
Soil	5	-	.63
Water	10	.01	1.27
Weeds	65	.05	8.24
Home grounds	20	.02	2.53
PROGRAM COMPONENT: OTHER CROPS	119	.09	100.00
Subject:			
Animal and plant nutrition	5	-	4.20
Animal and plant diseases	29	.02	24.37
Cultural practices	32	.02	26.89
Entomology	36	.03	30.25
Machinery, equip., & related eng.	2	-	1.68
Marketing	3	-	2.52
Pest mgt. & pesticide education	6	-	5.04
Selection and breeding	1	-	.84
Weeds	5	-	4.20
PROGRAM COMPONENT: FORESTRY	2640	2.03	100.00
Subject:			
Animal and plant nutrition	8	.01	.30
Buildings, structures, & facilities	23	.02	.87
Cultural practices	162	.12	6.14
Entomology	10	.01	.38
Forest management	1617	1.24	61.25

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Farm management	36	.03	1.36
Machinery, equip., & related eng.	15	.01	.57
Marketing	108	.08	4.09
Pest mgt. & pesticide education	101	.08	3.83
Weeds	9	.01	.34
Home grounds	30	.02	1.14
Housing	60	.05	2.27
Community facilities and services	10	.01	.38
CRD concepts and group action	8	.01	.30
Natural resources	15	.01	.57
Taxation & local Government	5	-	.19
Business	5	-	.19
Economics	33	.03	1.25
Energy	43	.03	1.63
Environment	10	.01	.38
Organization dev. & maintenance	202	.16	7.65
Personal growth & development	3	-	.11
Recreation	71	.05	2.69
Safety	12	.01	.45
Forest products	44	.03	1.67
PROGRAM COMPONENT: FRUITS AND NUTS	2525	1.94	100.00
Subject:			
Animal and plant nutrition	119	.09	4.71
Animal and plant diseases	214	.16	8.48
Cultural practices	1423	1.09	56.36

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Entomology	62	.05	2.46
Farm management	170	.13	6.73
Irrigation and drainage	17	.01	.67
Machinery, equip.,& related eng.	12	.01	.48
Marketing	214	.16	8.48
Pest mgt. & pesticide education	194	.15	7.68
Weeds	70	.05	2.77
Environment	30	.02	1.19
PROGRAM COMPONENT: VEGETABLES	4876	3.75	100.00
Subject:			
Animal and plant nutrition	275	.21	5.64
Animal and plant diseases	383	.29	7.85
Buildings, structures, & fac.	41	.03	.84
Cultural practices	2130	1.64	43.68
Entomology	106	.08	2.17
Farm management	208	.16	4.27
Irrigation and drainage	65	.05	1.33
Machinery, equip., & related eng.	18	.01	.37
Marketing	513	.39	10.52
Pest mgt. & pesticide education	352	.27	7.22
Selection and breeding	55	.04	1.13
Weeds	134	.10	2.75
Creative crafts	30	.02	.62
Food supply	370	.28	7.59
Gerontology	10	.01	.21

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Home grounds	10	.01	.21
Selection and buying	25	.02	.51
Community facilities & services	44	.03	.90
Communication skills	15	.01	.31
Economics	60	.05	1.23
Organization dev. & maintenance	20	.02	.41
Program planning	12	.01	.25
PROGRAM COMPONENT: ORNAMENTALS, FLOWERS, LANDSCAPING	3997	3.07	100.00
Subject:			
Animal and plant nutrition	122	.09	3.05
Animal and plant diseases	237	.18	5.93
Cultural practices	1633	1.26	40.86
Entomology	245	.19	6.13
Farm management	45	.03	1.13
Marketing	32	.02	.80
Pest mgt. & pesticide education	168	.13	4.20
Selection and breeding	56	.04	1.40
Soil	16	.01	.40
Weeds	145	.11	3.63
Human nutrition	25	.02	.63
Food supply	16	.01	.40
Home furnishings	10	.01	.25
Home grounds	1059	.81	26.49
Community facilities & services	10	.01	.25
Natural beauty	79	.06	1.98

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Energy	26	.02	.65
Environment	10	.01	.25
Personal growth & development	8	.01	.20
Program planning	20	.02	.50
Safety	35	.03	.88
PROGRAM COMPONENT: OTHER HORTICULTURAL CROPS	661	.51	100.00
Subject:			
Animal & plant nutrition	25	.02	3.78
Animal and plant diseases	10	.01	1.51
Buildings, structures, & facilities	8	.01	1.21
Cultural practices	289	.22	43.72
Entomology	16	.01	2.42
Farm management	47	.04	7.11
Machinery, equip., & related eng.	11	.01	1.66
Marketing	29	.02	4.39
Pest mgt. & pesticide education	9	.01	1.36
Selection and breeding	4	-	.61
Soil	4	-	.61
Weeds	44	.03	6.66
Food supply	10	.01	1.51
Occupational experiences	6	-	.91
Organization dev. & maintenance	15	.01	2.27
Personal growth & development	25	.02	3.78
Program planning	95	.07	14.37

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Program support & development	10	.01	1.51
Other training	4	-	.61
PROGRAM COMPONENT: GENERAL AGRICULTURE	9133	7.02	100.00
Subject:			
Animal and plant nutrition	389	.30	4.26
Animal and plant diseases	246	.19	2.69
Buildings, structures, & facilities	44	.03	.48
Cultural practices	818	.63	8.96
Entomology	320	.25	3.50
Farm management	1812	1.39	19.84
Irrigation and drainage	149	.11	1.63
Machinery, equip., & related eng.	71	.05	.78
Marketing	1057	.81	11.57
Pest mgt. & pesticide education	1082	.83	11.85
Processing	174	.13	1.91
Selection and breeding	75	.06	.82
Soil	353	.27	3.87
Water	15	.01	.16
Weeds	148	.11	1.62
Clothing and textiles	10	.01	.11
Family resource management	20	.02	.22
Home grounds	15	.01	.16
Selection and buying	15	.01	.16
Community facilities & services	15	.01	.16
CRD concepts & group action	41	.03	.45

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Occupational experiences	7	.01	.08
Waste disposal and management	181	.14	1.98
Communication skills	20	.02	.22
Economics	305	.23	3.34
Energy	159	.12	1.74
Environment	268	.21	2.93
Ext. organization & policy	20	.02	.22
Leadership development	77	.06	.84
Organization dev. & maintenance	163	.13	1.78
Other administrative functions	20	.02	.22
Personnel	16	.01	.18
Personal growth & development	43	.03	.47
Program planning	173	.13	1.89
Program support & development	353	.27	3.87
Safety	8	.01	.09
Formal training	4	-	.04
Orientation training	10	.01	.11
Meteorology	437	.34	4.78
PROGRAM COMPONENT: FOOD & NUTRITION (HUMAN)	6446	4.96	100.00
Subject:			
Marketing	5	-	.08
Processing	160	.12	2.48
Human nutrition	4165	3.20	64.61
Food supply	1217	.94	18.88

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Health - mental and physical	99	.08	1.54
Child care	10	.01	.16
Selection and buying	459	.35	7.12
Occupational experiences	5	-	.08
Economics	85	.07	1.32
Energy	43	.03	.67
Leadership development	14	.01	.22
Organization dev. & maintenance	1	-	.02
Other administrative functions	25	.02	.39
Personnel	25	.02	.39
Personal growth & development	6	-	.09
Program planning	62	.05	.96
Report preparation	5	-	.08
Safety	60	.05	.93
PROGRAM COMPONENT: CLOTHING & TEXTILES	4438	3.41	100.00
Subject:			
Clothing and textiles	3957	3.04	89.16
Gerontology	12	.01	.27
Health - mental and physical	35	.03	.79
Selection and buying	272	.21	6.13
Economics	60	.05	1.35
Energy	19	.01	.43
Personal growth & development	45	.03	1.01
Program planning	38	.03	.86

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
PROGRAM COMPONENT: HOUSING	7217	5.55	100.00
Subject:			
Entomology	115	.09	1.59
Marketing	9	.01	.12
Pest mgt. & pesticide education	35	.03	.49
Processing	11	.01	.15
Clothing and textiles	5	-	.07
Creative crafts	874	.67	12.11
Family resource management	43	.03	.60
Home furnishings	2858	2.20	39.60
Home grounds	19	.01	.26
Housing	2454	1.89	34.00
Selection and buying	69	.05	.96
CRD concepts & group action	10	.01	.14
Natural resources	12	.01	.17
Economics	55	.04	.76
Energy	589	.45	8.16
Program planning	51	.04	.71
Safety	1	-	.01
Forest products	7	.01	.10
PROGRAM COMPONENT: HUMAN DEVELOPMENT	3504	2.69	100.00
Subject:			
Cultural practices	15	.01	.43
Forest management	5	-	.14

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Cultural arts	30	.02	.86
Creative crafts	44	.03	1.26
Gerontology	30	.02	.86
Health - mental and physical	245	.19	6.99
Home grounds	42	.03	1.20
Human relations	1988	1.53	56.74
Child care	766	.59	21.86
CRD concepts and group action	14	.01	.40
Manpower & economic development	7	.01	.20
Citizenship	30	.02	.86
Communication skills	14	.01	.40
Leadership development	144	.11	4.11
Organization, dev., & maintenance	20	.02	.57
Personal growth & development	90	.07	2.57
Program planning	12	.01	.34
Safety	8	.01	.23
PROGRAM COMPONENT: RESOURCE MANAGEMENT (FAMILY)	3920	3.01	100.00
Subject:			
Cultural practices	80	.06	2.04
Marketing	3	-	.08
Clothing and textiles	43	.03	1.10
Food supply	39	.03	.99
Family resource management	3341	2.57	85.23
Health - mental and physical	56	.04	1.43

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Home furnishings	35	.03	.89
Housing	56	.04	1.43
Selection and buying	48	.04	1.22
Business	10	.01	.26
Economics	98	.08	2.50
Energy	88	.07	2.24
Program planning	20	.02	.51
Safety	3	-	.08
PROGRAM COMPONENT: AGING	1640	1.26	100.00
Subject:			
Creative crafts	30	.02	1.83
Gerontology	1325	1.02	80.79
Family resource management	4	-	.24
Health - mental and physical	51	.04	3.11
Home grounds	29	.02	1.77
Human relations	87	.07	5.30
Community fac. and services	18	.01	1.10
Economics	20	.02	1.22
Energy	5	-	.30
Personal growth and development	48	.04	2.93
Program planning	14	.01	.85
Program support & development	5	-	.30
Safety	4	-	.24

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
PROGRAM COMPONENT: GENERAL HOME EC.	4141	3.18	100.00
Subject:			
Marketing	4	-	.10
Clothing and textiles	195	.15	4.71
Cultural arts	5	-	.12
Creative crafts	312	.24	7.53
Human nutrition	38	.03	.92
Gerontology	10	.01	.24
Family resource management	153	.12	3.69
Health - mental and physical	77	.06	1.86
Home furnishings	50	.04	1.21
Housing	80	.06	1.93
Selection and buying	37	.03	.89
Business & industrial development	12	.01	.29
CRD concepts and group action	55	.04	1.33
Communication skills	6	-	.14
Economics	5	-	.12
Energy	201	.15	4.85
Extension organization and policy	31	.02	.75
Leadership development	1868	1.44	45.11
Organization dev. & maintenance	483	.37	11.66
Personal growth & development	120	.09	2.90
Program planning	87	.07	2.10
Program support & development	282	.22	6.81
Safety	15	.01	.36
In-service training	15	.01	.36

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
PROGRAM COMPONENT: GENERAL 4-H AND YOUTH	21669	16.66	100.00
Subject:			
Animal and plant nutrition	34	.03	.16
Animal and plant diseases	10	.01	.05
Cultural practices	96	.07	.44
Entomology	54	.04	.25
Forest management	3	-	.01
Farm management	15	.01	.07
Machinery, equip.,& related eng.	38	.03	.18
Marketing	3	-	.01
Selection and breeding	160	.12	.74
Soil	22	.02	.10
Weeds	5	-	.02
Clothing and textiles	7	.01	.03
Cultural arts	45	.03	.21
Creative crafts	14	.01	.06
Human nutrition	88	.07	.41
Food supply	35	.03	.16
Gerontology	2	-	.01
Health - mental and physical	24	.02	.11
Home furnishings	6	-	.03
Human relations	13	.01	.06
Community facilities & services	21	.02	.10
CRD concepts & group action	129	.10	.60
Natural resources	13	.01	.06

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Occupational experiences	180	.14	.83
Citizenship	143	.11	.66
Communication skills	125	.10	.58
Economics	259	.20	1.20
Energy	34	.03	.16
Environment	42	.03	.19
Exchange programs	82	.06	.38
Leadership development	5351	4.11	24.69
Organization dev. & maintenance	4806	3.70	22.18
Other administrative functions	30	.02	.14
Personnel	193	.15	.89
Personal growth & development	3501	2.69	16.16
Program planning	2846	2.19	13.13
Program support & development	2147	1.65	9.91
Recreation	286	.22	1.32
Report preparation	15	.01	.07
Safety	192	.15	.89
In-service training	315	.24	1.45
Formal training	10	.01	.05
Other training	121	.09	.56
Orientation training	154	.12	.71
PROGRAM COMPONENT: GENERAL CRD	6467	4.97	100.00
Subject:			
Animal and plant nutrition	30	.02	.46
Cultural practices	39	.03	.60

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Entomology	20	.02	.31
Forest management	31	.02	.48
Farm management	16	.01	.25
Machinery, equip.,& related eng.	18	.01	.28
Marketing	30	.02	.46
Pest mgt. & pesticide education	196	.15	3.03
Processing	8	.01	.12
Soil	298	.23	4.61
Water	47	.04	.73
Cultural arts	15	.01	.23
Food supply	20	.02	.31
Gerontology	15	.01	.23
Family resource management	5	-	.08
Health - mental and physical	39	.03	.60
Home grounds	40	.03	.62
Housing	62	.05	.96
Child care	20	.02	.31
Business & industrial dev.	146	.11	2.26
Community facilities & services	396	.30	6.12
CRD concepts & group action	1475	1.13	22.81
Comprehensive community planning	258	.20	3.99
Land use	381	.29	5.89
Manpower & economic development	60	.05	.93
Natural resources	70	.05	1.08
Natural beauty	119	.09	1.84
Waste disposal & management	199	.15	3.08

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Business	9	.01	.14
Citizenship	45	.03	.70
Energy	288	.22	4.45
Environment	20	.02	.31
Leadership development	912	.70	14.10
Organization dev. & maintenance	337	.26	5.21
Personnel	15	.01	.23
Personal growth & development	14	.01	.22
Program planning	336	.26	5.20
Program support & development	164	.13	2.54
Recreation	208	.16	3.22
Safety	66	.05	1.02
PROGRAM COMPONENT: GENERAL EXTENSION	4348	3.34	100.00
Subject:			
Animal and plant nutrition	40	.03	.92
Cultural practices	7	.01	.16
Entomology	160	.12	3.68
Farm management	23	.02	.53
Machinery, equip., & related eng.	25	.02	.58
Pest mgt. & pesticide education	115	.09	2.64
Soil	11	.01	.25
Water	77	.06	1.77
Weeds	12	.01	.28
Clothing and textiles	40	.03	.92
Family resource management	14	.01	.32

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Housing	10	.01	.23
Human relations	10	.01	.23
Child care	15	.01	.35
CRD concepts & group action	59	.05	1.36
Waste disposal and management	65	.05	1.49
Civil Rights & Equal Employment	13	.01	.30
Communication skills	20	.02	.46
Economics	59	.05	1.36
Energy	137	.11	3.15
Ext. organization and policy	142	.11	3.27
Leadership development	50	.04	1.15
Organization dev. & maintenance	440	.34	10.12
Other administrative functions	370	.28	8.51
Personnel	132	.10	3.05
Personal growth & development	6	-	.14
Program planning	1173	.90	26.98
Program support & development	817	.63	18.79
Report preparation	15	.01	.35
Safety	141	.11	3.24
Formal training	100	.08	2.30
Orientation training	50	.04	1.15
PROGRAM COMPONENT: STAFF DEV.	2481	1.91	100.00
Subject:			
Animal and plant diseases	50	.04	2.02
Cultural practices	17	.01	.69

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Soil	70	.05	2.82
Water	30	.02	1.21
Weeds	55	.04	2.22
Family resource management	15	.01	.60
CRD concepts & group action	110	.08	4.43
Waste disposal & management	10	.01	.40
Communication skills	185	.14	7.46
Economics	129	.10	5.20
Ext. organization and policy	52	.04	2.10
Leadership development	20	.02	.81
Organization dev. & maintenance	48	.04	1.93
Other administrative functions	114	.09	4.59
Personnel	147	.11	5.93
Personal growth and development	440	.34	17.73
Program planning	802	.62	32.33
Program support & development	37	.03	1.49
Report preparation	10	.01	.40
In-service training	78	.06	3.14
Orientation training	9	.01	.36
Forest products	38	.03	1.53
Meteorology	15	.01	.60
PROGRAM COMPONENT: BEEKEEPING AND POLLINATION	146	.11	100.00
Subject:			
Cultural practices	72	.06	49.32

	Planned Time	% of Total Planned Time	% of Program Component Planned Time
Entomology	64	.05	43.84
Farm management	10	.01	6.85
PROGRAM COMPONENT: CHRISTMAS TREES	489	.38	100.00
Subject:			
Animal and plant nutrition	40	.03	8.18
Cultural practices	196	.15	40.08
Entomology	11	.01	2.25
Forest management	36	.03	7.36
Farm management	85	.07	17.38
Machinery, equip., & related eng.	6	-	1.23
Weeds	65	.05	13.29
Creative crafts	20	.02	4.09
Organization dev. & maintenance	30	.02	6.14
PROGRAM COMPONENT: URBAN FORESTRY	172	.13	100.00
Subject:			
Cultural practices	131	.10	76.16
Forest management	12	.01	6.98
Pest mgt. & pesticide education	17	.01	9.88
Forest products	12	.01	6.98
GRAND TOTAL	130062	100.00	

PLANNED TIME FOR 1862 PROFESSIONAL STAFF MEMBERS
BY SUBJECTS
N. C. AG. EXTENSION SERVICE
FY 81

Subjects	Planned Days	% of Planned Time
Animal and plant nutrition	7404	5.69
Animal and plant diseases	6045	4.65
Buildings, structures, & facilities	2029	1.56
Cultural practices	13923	10.70
Entomology	1934	1.49
Forest management	2002	1.54
Farm management	6096	4.69
Irrigation and drainage	303	.23
Machinery, equipment, & related engineering	519	.40
Marine science	399	.31
Marketing	3366	2.59
Pest management & pesticide education	5357	4.12
Processing	1093	.84
Selection and breeding	4237	3.26
Soil	1095	.84
Water	199	.15
Weeds	2142	1.65
Clothing and textiles	4257	3.27
Cultural arts	110	.08
Creative crafts	1324	1.02
Human nutrition	4326	3.33
Food supply	1707	1.31
Gerontology	1404	1.08
Family resource management	3595	2.76

Subjects	Planned Days	% of Planned Time
Health - mental and physical	626	.48
Home furnishings	2959	2.28
Home grounds	1264	.97
Housing	2782	2.14
Human relations	2098	1.61
Child care	811	.62
Selection and buying	940	.72
Business & industrial development	194	.15
Community facilities and services	529	.41
CRD concepts & group action	1901	1.46
Comprehensive community planning	258	.20
Land use	381	.29
Manpower and economic development	141	.11
Natural resources	225	.17
Natural beauty	198	.15
Occupational experiences	198	.15
Taxation and local Government	5	-
Waste disposal and management	1277	.98
Business	30	.02
Citizenship	218	.17
Civil Rights & Equal Employment	31	.02
Communication skills	395	.30
Economics	1198	.92
Energy	2098	1.61
Environment	423	.33
Exchange programs	82	.06

Subjects	Planned Days	% of Planned Time
Ext. organization and policy	275	.21
Leadership development	8506	6.54
Organization dev. and maintenance	6895	5.30
Other administrative functions	574	.44
Personnel	528	.41
Personal growth & development	4373	3.36
Program planning	5982	4.60
Program support and development	3989	3.07
Recreation	587	.45
Report preparation	183	.14
Safety	552	.42
In-service training	464	.36
Formal training	114	.09
Other training	130	.10
Orientation training	229	.18
Forest products	101	.08
Meteorology	452	.35
GRAND TOTAL	130062	100.00

PLANNED TIME BY 1862 PROFESSIONALS IN EFNEP
BY PROGRAM COMPONENT - SUBJECT
N. C. AG. EXTENSION SERVICE
FY 81

	Planned Days	% of Planned Time
PROGRAM COMPONENT: TOBACCO	30	100.00
Subject:		
Cultural practices	30	100.00
PROGRAM COMPONENT: GRAIN CROPS	27	100.00
Subject:		
Cultural practices	7	25.93
Pest mgt. and pesticide education	20	74.07
PROGRAM COMPONENT: VEGETABLES	4	100.00
Subject:		
Cultural practices	4	100.00
PROGRAM COMPONENT: ORNAMENTALS, FLOWERS, LANDSCAPING	100	100.00
Subject:		
Selection and buying	100	100.00
PROGRAM COMPONENT: GENERAL AGRICULTURE	100	100.00
Subject:		
Entomology	40	40.00
Pest management and pesticide education	60	60.00
PROGRAM COMPONENT: FOOD & NUTRITION (HUMAN)	3997	100.00
Subject:		
Cultural practices	16	.40
Human nutrition	2647	66.22

	Planned Days	% of Planned Time
Food supply	669	16.74
Family resource management	36	.90
Selection and buying	132	3.30
Leadership development	12	.30
Organization dev. and maintenance	87	2.18
Program planning	335	8.38
Program support and development	18	.45
Safety	25	.63
Formal training	20	.50
PROGRAM COMPONENT: HOUSING	49	100.00
Subject:		
Entomology	45	91.84
Creative crafts	4	8.16
PROGRAM COMPONENT: HUMAN DEVELOPMENT	22	100.00
Subject:		
Human relations	12	54.55
Personal growth & development	10	45.45
PROGRAM COMPONENT: RESOURCE MGT. (FAMILY)	20	100.00
Subject:		
Family resource management	20	100.00
PROGRAM COMPONENT: GENERAL EXTENSION	78	100.00
Subject:		
Animal and plant nutrition	8	10.26
Human relations	10	12.82
Energy	30	38.46

	Planned Days	% of Planned Time
Organization development & maintenance	10	12.82
Other administrative functions	10	12.82
Program planning	10	12.82
PROGRAM COMPONENT: STAFF DEVELOPMENT	74	100.00
Subject:		
Family resource management	20	27.03
Civil Rights & Equal Employment	40	54.05
Extension organization and policy	8	10.81
Other administrative functions	3	4.05
Program planning	3	4.05
GRAND TOTAL	4501	

PLANNED TIME BY EFNEP PROFESSIONALS
BY AUDIENCE TYPES
N. C. AG. EXTENSION SERVICE
FY 81

Audience Types	Planned Days	% of Planned Time
Farmer	37	.82
Family members	549	12.20
Homemakers	814	18.08
Volunteer leaders (adult)	24	.53
Volunteer leaders (adult & junior)	45	1.00
Extension citizens committees	15	.33
Extension professionals	303	6.73
Non-Extension professionals	10	.22
Extension paraprofessinnals	2133	47.39
EFNEP Youth	546	12.13
Other youth and/or youth and adults	10	.22
4-H members and adults	15	.33
TOTAL	4501	100.00

PLAN OF WORK SUMMARY DATA

FOR

PARAPROFESSIONAL EXTENSION STAFF MEMBERS

FY 1981

PLANNED TIME FOR EFNEP PARAPROFESSIONALS
BY PROGRAM COMPONENT - SUBJECT
N. C. AG. EXTENSION SERVICE
FY 81

	Planned Days	% of Planned Time
PROGRAM COMPONENT: VEGETABLES	216	100.00
Subject:		
Food supply	216	100.00
PROGRAM COMPONENT: FOOD & NUTRITION (HUMAN)	37451	100.00
Subject:		
Pest management & pesticide education	50	.13
Soil	20	.05
Human nutrition	30431	81.26
Food supply	3893	10.39
Family resource management	676	1.81
Health - mental and physical	121	.32
Selection and buying	1206	3.22
Leadership development	102	.27
Organization development & maintenance	234	.62
Personnel	62	.17
Program planning	285	.76
Report preparation	40	.11
Safety	283	.76
Formal training	48	.13
PROGRAM COMPONENT: GENERAL HOME ECONOMICS	24	100.00
Subject:		
Food supply	24	100.00

	Planned Days	% of Planned Time
PROGRAM COMPONENT: GENERAL 4-H AND YOUTH	405	100.00
Subject:		
Human nutrition	405	100.00
PROGRAM COMPONENT: GENERAL EXTENSION	36	100.00
Subject:		
Organization dev. & maintenance	36	100.00
GRAND TOTAL	38132	100.00

PLANNED TIME FOR EFNEP PARAPROFESSIONALS
BY SUBJECTS
N. C. AG. EXTENSION SERVICE
FY 81

Subject	Planned Days	% of Planned Time
Pest management and pesticide education	50	.13
Soil	20	.05
Human nutrition	30836	80.87
Food supply	4133	10.84
Family resource management	676	1.77
Health - mental and physical	121	.32
Selection and buying	1206	3.16
Leadership development	102	.27
Organization development and maintenance	270	.71
Personnel	62	.16
Program planning	285	.75
Report preparation	40	.10
Safety	283	.74
Formal training	48	.13
GRAND TOTAL	38132	100.00

PLANNED TIME FOR 1862 PARAPROFESSIONAL EXTENSION STAFF MEMBERS BY AUDIENCE TYPES[1/]
N. C. AG. EXTENSION SERVICE
FY 81

Audience Types	Planned Days	% of Planned Time
Agri-business firms	62	.13
Farmer	159	.34
Family members	7424	15.65
Homemakers	20835	43.92
Extension homemakers	84	.18
Senior citizens	191	.40
Handicapped	50	.11
Volunteer leaders (adult)	1219	2.57
Volunteer leaders (adult & junior)	1290	2.72
Extension citizens committees	54	.11
Extension professionals	30	.06
Extension paraprofessionals	826	1.74
4-H members	411	.87
EFNEP Youth	7817	16.48
Other youth	2517	5.31
4-H members and adults	2066	4.35
Adults	1790	3.77
Government agencies	600	1.26
Legitimizing groups	18	.04
GRAND TOTAL	47443	100.00

[1/] Includes all paraprofessionals except 1890 paraprofessionals

PLANNED TIME FOR 4-H PROGRAM ASSISTANTS
BY SUBJECTS
N. C. AG. EXTENSION SERVICE
FY 81

Subject	Planned Days	% of Planned Time
Human nutrition	100	1.22
Health - mental and physical	72	.88
Selection and buying	100	1.22
Leadership development	1610	19.63
Organization development & maintenance	3528	43.01
Other administrative functions	100	1.22
Personnel	32	.39
Personal growth and development	925	11.28
Program planning	811	9.89
Program support and development	420	5.12
Recreation	28	.34
Safety	56	.68
Other training	420	5.12
GRAND TOTAL	8202	100.00