

NORTH CAROLINA AGRICULTURAL EXTENSION SERVICE

MARKETING AND UTILIZATION (PROJECT IV)

ANNUAL REPORT JANUARY 1, 1963 TO DECEMBER 31, 1963

PROJECT PERSONNEL	PERCENTAGE OF TIME DEVOTED TO PROJECT
<u>Project Leader</u>	
J. C. Williamson, Jr., Assistant Director	50
<u>Food Science</u>	
W. M. Roberts, Department Head	9
M. E. Gregory, Dairy Products Specialist	86
J. A. Christian, Meats Specialist	100
F. B. Thomas, Food Processing Specialist	100 (AMA thru 6-30-63)
J. F. Wiles, Foods Engineer	100
N. C. Miller, Fruit and Vegetable Processing Specialist	100 (AMA since 6-30-63)
F. R. Tarver, Jr., Poultry Processing Specialist (Employed 8-15-63)	100 (AMA)
<u>Forestry</u>	
U. E. Keppler, Wood Products Specialist	89 (AMA)
L. H. Hobbs, Wood Products Specialist	100 (AMA)
W. T. Huxster, Jr., Wood Products Specialist	100 (AMA since 6-30-63)
<u>Marketing Economics</u>	
G. L. Capel, Specialist In Charge	100
R. S. Boal, Marketing Agency Specialist	100
R. C. Brooks, Cotton Marketing Specialist (Employed 10-1-63)	100
G. R. Cassell, Livestock Marketing Specialist	100 (AMA)
R. D. Dahle, Firm Management Specialist	100 (AMA)
Gaynelle Hogan, Consumer Marketing Specialist	100 (AMA thru 6-30-63)
H. A. Homme, Dairy Marketing Specialist	100 (AMA)
C. P. Libeau, Poultry Marketing Specialist (Separated 6-30-63)	100 (AMA)
T. E. Nichols, Grain Marketing Specialist	100 (AMA)
E. A. Proctor, Fruit and Vegetable Marketing Specialist	100 (AMA)
F. J. Smith, Fruit and Vegetable Marketing Specialist	100 (AMA)
E. M. Stallings, Cotton Marketing Specialist (Civil Defense since 6-1-63)	100
Ruby P. Uzzle, Consumer Marketing Specialist (On Leave since 7-17-63)	100 (AMA thru 6-30-63)
<u>Textile Cotton Utilization</u>	
Vacancy, Cotton Utilization Specialist	100 (AMA)
Vacancy, Cotton Utilization Specialist	100 (AMA)

Signed \_\_\_\_\_

Project Leader

Date Submitted \_\_\_\_\_

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## PROGRAM ACCOMPLISHMENTS

### I. Short-Run Managerial Skills

The objective of this area of work is to develop managerial and operational skills within marketing firms such that these firms may adjust readily to short-run changes in both market incentives and internal conditions of the firm.

A two-day management training school was conducted for the managers of meat packing firms in North Carolina. Information was presented on management principles and processing technology in meat packing (G. R. Cassell, R. D. Dahle and E. A. Proctor, all AMA; R. S. Boal, G. L. Capel and J. A. Christian).

The North Carolina Coastal Growers Cooperative Board of Directors was assisted in determining criteria for sales managers. Material was presented on salesmanship to personnel of apple marketing firms (E. A. Proctor, AMA).

Assistance was given the Locker Management Institute at Chapel Hill where thirty-six locker operators from four states gathered for a one-week course on "Management Practices as They Affect the Locker Industry." A program was presented at the Bankers Short Course on making the producers of today's food aware of new product developments. Emphasis was placed on the importance of efficiency in food production, processing, distributing and retailing on today's market (J. A. Christian).

A program was presented to country ham processors from Virginia, Ohio, Kentucky and Tennessee on "Proper Methods and Procedures for Curing Country Hams" (J. A. Christian).

Assistance was given the North Carolina Dairy Products Association in arranging and programming the Superintendents and Accountants Conference, Sales Managers Conference and the annual meetings of the North Carolina Dairy Products Association. Educational programs have been arranged through the two North Carolina Dairy Technology Societies to improve management skills. Eighteen educational meetings were conducted in the two North Carolina Dairy Technology Societies in which over seven hundred industry personnel participated. One dairy plant was assisted in preparing a detailed plan for future expansion. A number of meetings were held with dairy plant managers on planning information collection systems for better decision making (M. E. Gregory, W. M. Roberts and J. F. Wiles).

A one-day clinic was conducted on wholesale pricing of milk. Such subjects as quantity discounting and their effect on plant costs and the general problem of distribution costs were discussed. Over fifty industry personnel participated in the meeting (M. E. Gregory, H. A. Homme, AMA; R. L. Simmons, Research; and W. M. Roberts).

Approximately fifty individual plant visits were made to give information and industrial engineering assistance which management had either expressed or shown a need for. Two major dairy plants were assisted in developing job evaluation programs of which one has been completed and the other is progressing satisfactorily. A time-standard program was completely updated in one of the leading meat processing plants, and a number of contacts for the same type of work were made in other commodity areas.

Numerous changes in plant layouts were worked out with individual processors. Process techniques and equipment utilization, production planning and control, and methods improvements were other phases of industrial engineering in which efforts were concentrated (J. F. Wiles, M. E. Gregory and J. A. Christian).

Improvements in food processing plant efficiencies have been noticeably favorable. By working in the fields of management controls and industrial engineering, on an individual plant basis, numerous improvements have been accomplished. With the ultimate aim of lowering costs, concentration of effort has been directed toward method improvements, equipment utilization and/or layout, supervisory techniques and training of personnel. Group meetings and conferences, both on the campus and at outside locations or at individual plants, have been highly successful in working with all levels of personnel. Many problems involved working with the commodity specialists in their specific fields; most of this work was performed on an individual plant basis. The most sought after industrial engineering services were work simplification (both the training conference and on specific problems), plant layouts and operating economics. Warehousing and storage problems were brought to our attention throughout the year - much more so than last year, and this is probably due to a tightening up of management controls - and these were properly and quickly solved or eliminated. On all projects there have been follow-up conferences and comparisons (J. F. Wiles and N. C. Miller and F. B. Thomas, both AMA).

A case study was made of a sawmill operation with the objectives of (a) improving efficiency of the firm, (b) demonstrating to management of this firm and other similar firms the need for continuing analysis of the firm's operations and (c) obtaining basic input-output information from

which generalized solutions might be derived about sawmill problems. The case study was highly successful. As one measurement, the recommendation to this firm resulted in an estimated annual saving to the mill of \$38,000 (W. T. Huxster, Jr., AMA, and Peter Dyson, Research).

Four wood utilization firms were assisted in planning studies of raw material assembly costs. Assistance was given in (a) developing necessary technical data, (b) analysis of data, (c) planning educational materials for use in instructing different levels of management and (d) organizing group sessions for dissemination of information to different levels of management. Company personnel have continued studies of raw material procurement costs beyond the initial studies planned (W. T. Huxster, AMA).

One firm was assisted in planning a program to educate loggers in improved cutting of trees into logs. An initial analysis indicated that miscut logs were costing the firm \$18,000 per year. Discussion sessions with key personnel were developed to instruct them in making improved log cuttings (W. T. Huxster, AMA).

A set of visuals is partially completed for use in instructing loggers in more efficient methods of performing specific tasks (W. T. Huxster, AMA).

In conjunction with the Southern Pine Association, a primer course has been developed in sawmill operations analysis for use in training management in the potential uses for this tool (W. T. Huxster, W. E. Keppler and L. H. Hobbs, all AMA).

A case study was begun of the minimum cost lumber inventory. It has been determined that (a) inventory costs can be reduced by \$1,800 to \$1,900 per year, (b) additional records above those normally kept in the industry are necessary in order to maintain a minimum cost inventory and (c) some

means of estimating costs of delay in shipment due to inventory limitations must be derived before the net effect a change in inventory schedule on firms' profits can be made (W. E. Keppler, AMA).

## II. Long-Run Entrepreneurial Skills

The objective of this area of work is to develop entrepreneurial skills in present and potential marketing firms such that long-range plans for operating adjustments and capital investment may reflect current and projected developments in market demand, supply of raw products and other inputs and marketing technology.

A proposal for improving procurement and processing methods of a canning plant of a regional cooperative was made. This report was presented to the manager of the plant. The management has set in motion actions to adopt the suggestions made over a period of time (E. A. Proctor, N. C. Miller and R. D. Dahle, all AMA and G. C. Dobbins and W. C. Williford, both of Project VIII).

The wise use of market price and quality information about cotton was stressed with producers, ginners, merchants, mills and others. This was done through the use of radio tapes and newspaper releases throughout the Cotton Belt. Information was collected and disseminated which related quality statistics for North Carolina cotton to specific marketing practices. This information was circulated by radio and newspaper (R. C. Brooks and E. M. Stallings).

A three-county watermelon cooperative was assisted with an analysis of the year's operation and advice on a marketing contract for the subsequent season. The physical handling operations of a vegetable marketing cooperative

were analyzed and a report outlining steps for improvement presented to the Board of Directors. Three publications were prepared on sweet potato marketing presenting cost-volume relationships in specific marketing operations. Data were gathered on blueberry marketing to compare cost and returns as related to marketing practices (E. A. Proctor, AMA).

The top management of grain and feed firms was presented information on techniques of cost accounting and the importance of using the information so obtained. Especially emphasized was the use of accurate costs in pricing multiple products. Materials on transportation costs were presented to grain and feed firms (T. E. Nichols, Jr., AMA).

Poultry marketing firms were assisted with information on handling costs and trends within the industry which relate to individual firm efficiency. Considerable data were presented to these firms showing price and output relationships within the industry as guides to individual firm decisions. This information was distributed primarily through a series of newsletters to the industry which interpreted the relationships. The importance of the full range of finished products was presented to poultry marketing firms with the result that three plants added cut-up broilers to their product lines (C. P. Libeau, AMA).

Milk distributors were presented with information on milk distribution costs. This material related to distribution on wholesale and retail routes. The need to relate pricing policies to distribution costs, especially on wholesale routes, was emphasized. A formula method of pricing Class I milk was brought up to date and disseminated (H. A. Homme, AMA; and M. E. Gregory).

A detailed study was made of the prospects confronting one dairy marketing cooperative. Specific recommendations were made to the Board of Directors



of this firm concerning their short-run and long-run outlook. As a direct result of this advice, the Board of Directors was able to make future plans which will result in considerable monetary savings to the members of the cooperative (H. A. Homme and R. D. Dahle, both AMA, and R. S. Boal).

Local meat packing firms were advised relative to the economics of modifying their plants to meet federal inspection requirements. The cost of making necessary changes was presented to the management of meat firms and the relative advantage in making this change was presented. Information was presented to the management of one firm relative to his potential sales area and alternative procedures which he might use to expand his sales within this territory. Information was presented the industry on cattle, hog and meat movements in the Southeast. A survey was made of cattle on feed in each county which, in turn, is useful to marketing firms in planning their procurement operations (G. R. Cassell, AMA).

One major seafood processor has been assisted in planning additions to his equipment to enlarge the number of products packed under a high quality program. This venture will represent about \$75,000 to \$100,000 plant expansion when completed. This expenditure should allow this company to nearly double its income and approach \$1,000,000 in annual sales. A major part of this expansion will be in clam processing. The extension specialist, jointly with personnel from the university marine laboratory, has helped to integrate the expansion of processing capacity with a long-range program to produce clams under controlled conditions (F. B. Thomas).

One wood products specialty manufacturer was assisted in a detailed investigation of the best alternative reorganizations of the business over the long run. As a result of this investigation, the firm was able to

obtain a Small Business Administration loan to reorganize the plant facilities and to streamline its operation (L. H. Hobbs, AMA).

### III. Consumer and User Information

The objective of this area of work is to expand the market for present products and services and to introduce new products by increasing consumer and user understanding of marketing and market conditions and the understanding of producers and operators of marketing firms of the characteristics of consumer demand.

Mass media were used to obtain a greater understanding of the hows and whys of the marketing system as it affects the purchasing decisions of consumers. Timely information on available foods was presented through radio, television, newspapers and newsletters. Information was presented on seasonality of food marketings, food laws, food quality, alternative sources of given levels of nutrition and new products available. The consumer reaction to and acceptance of North Carolina peaches was presented to peach marketing firms in North Carolina. A study was made of the consumer acceptance of and reaction to North Carolina apples during the 1963 marketing season. Similar work was also carried on for sweet potatoes and dewberries (Ruby Uzzle and Gaynelle Hogan, both AMA).

Six news stories and seven TV programs were prepared and presented to the public on seafoods in North Carolina featuring "The Blue Crab Story," "Clams, Oysters and Scallops" and similar topics. Three presentations featured production, processing and marketing aspects of several of our seafoods. Approximately three hundred copies of "Seafood Cookery in North Carolina" were distributed to Home Economists, Home Extension Agents, utility companies and private individuals (F. B. Thomas).

Forty meetings were held for local leaders for the purpose of showing the consumers how to get more meat for the meat dollar. Programs consisted of how to serve meat in a variety of ways and how to obtain a balanced diet by serving a variety of foods. Twenty-five radio programs were given to make the consuming public aware of the seasonal variation in meat prices and to point out the nutritive value of meat and ways of using more meat in the diet. Twenty-five hundred booklets were distributed on meat cuts, grades and methods of preparation, along with many meetings on identification of grade and cut for method of preparation. A ham exhibit was prepared at the North Carolina State Fair, illustrating the change in the types of country hams produced and showing the proper methods of cutting and serving country ham. A ham was given away each day and during the six days of the fair, over fifty thousand individuals registered at the country ham exhibit, indicating the interest in the country ham exhibit (J. A. Christian).

The statewide dairy promotion committee and the North Carolina Dairy Products Association were assisted in preparing educational material and programs on the market value of dairy products and their dietary contribution (M. E. Gregory).

Two television shows and four radio tapes were prepared on the contributions of the food processing industry to consumer products (N. C. Miller, AMA).

A training program was held for Home Economics Agents for the purpose of giving them training such that they can instruct homemakers on the proper selection, storage, preparation and serving of meats to have the maximum value (John Christian).

#### IV. Understanding of Market Structure

The objective of this area of work is to provide farm, civic and industry leaders and 4-H youth with information on the organization and structure of markets for farm products and farm supplies, and on the proper role of cooperatives and other legal types of marketing firms; and in cooperation with certain area and local civic groups, to make studies of the feasibility of certain types of production and marketing operations.

An annual Institute for Cooperatives was conducted at two locations in North Carolina. The objective of the Institute is to educate directors and managers of cooperatives to carry on more efficient and successful cooperative businesses in order to increase incomes of farmers. Emphasis was placed on directors' responsibility in controlling the policies of the cooperative and on the cooperative image. The attendants at these institutes totaled about 240 managers and directors (R. S. Boal, R. D. Dahle, T. E. Nichols, Jr., AMA, J. C. Williamson, Jr., G. L. Capel and George Hyatt, Jr. of Project I).

Organizational and operational requirements for dairy herd improvement associations and artificial breeding associations were prepared for the benefit of production specialists who work intensely with these types of organizations. Through a county agent, assistance was given in drafting incorporation papers for a grape marketing cooperative. The Columbia Bank for Cooperatives was advised relative to the potential for vegetable processing and marketing firms in northeastern North Carolina as determined by a research study of this area. The economic literacy of farm boys and girls in North Carolina was improved by working with them in the 4-H Club project relating to how cooperatives fit into our economic system (R. S. Boal).

Assistance was given to county cooperative groups in organizing and initiating numerous County Cooperative Councils. The possible aims of these

organizations were discussed along with suggested types of activities (R. S. Boal and G. L. Capel).

A grain company was assisted in planning possible marketing practices for increasing their business in the immediate future. A detailed study was made of the economic organization of the hybrid seed corn industry in North Carolina. This study was presented to industry leaders and was designed to be used by these leaders and the hybrid seed corn producers for developing future production and marketing plans (T. E. Nichols, Jr. and R. D. Dahle, both AMA).

Information was developed on possible food processing activities in the Piedmont Area Development Association region. Data were gathered from marketing firms and the possibility of a chicken deboning plant was evaluated. A program was written for IBM computation of derived farm prices when making processing plant feasibility studies. Farm Management Specialists were assisted with an analysis of the Northern Piedmont area. The considerations in establishing processing plants were discussed with a meeting of district agricultural representatives in the state (R. D. Dahle and F. B. Thomas, AMA, and C. R. Weathers, Fred Mangum, P. S. Stone and John Harris of Project III).

Plans were made for the development of a series of publications useful in educating groups about the feasibility of specific marketing operations. Four manuscripts were prepared. The first of these covers the principles of plant location and factors affecting costs. The other three present plant costs for strawberry and blueberry freezing and snap bean canning. Costs for processing other commodities will be added to the series (R. D. Dahle, AMA, and G. L. Capel).

Sessions were held with ginners and cotton improvement associations on the procedures required to qualify for services under the Smith-Doxey Act. Effort was made to educate the same groups on the use of the Micronaire services for evaluating the quality of cotton (R. C. Brooks and E. M. Stallings).

A study was made on the market structure for the North Carolina Sandhills peach industry and the results of this study explained to the marketing firms in the industry. Analysis of a coordinated tomato marketing program for North Carolina was made and presented. Work was started on the economic potential for certain crops in the northeastern section of North Carolina. Adjustments needed in apple marketing organizations were discussed on numerous occasions with marketing groups. Cooperation was extended to the North Carolina Department of Conservation and Development in evaluating the possibilities for processing plants in the Sampson County area of North Carolina (E. A. Proctor, AMA, and J. G. Allgood and M. H. Kolbe of Project III).

The feed grain program was analyzed in terms of its effect upon North Carolina agriculture. In cooperation with Farm Management Specialists, thirty-four schools were held for farmers (T. E. Nichols, Jr., AMA).

A two-day conference on dairy marketing regulation was held for dairy marketing firm personnel in the Southeast. About 100 dairy leaders attended (H. A. Homme, AMA).

Information was provided to meat packers at three industry-wide meetings relative to economic trends and the economic outlook for livestock. The possibility of reducing costs through vertical integration was presented.

Analysis was started on the movement to feedlots of calves sold at feeder calf sales in North Carolina (G. R. Cassell, AMA).

A plan for a vertically integrated hog marketing firm was presented to an interested group in Columbus County (G. R. Cassell, AMA; and R. S. Boal).

Lectures were presented at a Cotton Classing School on the futures market and the world market for cotton. Information on the organization of the broiler processing industry and trends in the industry was presented to a county group of broiler producers (G. L. Capel).

The monthly publication, Tarheel Farm Economist, was planned and edited in cooperation with other staff members in Agricultural Economics. Several staff members in Marketing Economics prepared articles on selected topics related to the market structure for farm products (E. A. Proctor and G. L. Capel).

The functions of the Extension Marketing Economics staff and commodity problems were presented to an undergraduate class in marketing (G. L. Capel, T. E. Nichols, Jr., H. A. Homme, E. A. Proctor and G. R. Cassell).

Information was developed on the importance of international trade to North Carolina agriculture at the request of the Trade Expansion Council. A paper on the results of this analysis was published in the publication of the North Carolina Port Authority. The United States Department of Commerce office in Greensboro was supplied information on potential exporters of farm products (G. L. Capel).

Marketing Economics personnel participated in the in-service training program for county personnel as follows:

1. Two swine schools - G. R. Cassell, AMA; and G. L. Capel
2. Tomato school - E. A. Proctor, AMA; and G. L. Capel

3. Tobacco school - G. L. Capel
4. Dairy school - H. A. Homme, AMA

A two-day regional conference on dairy policy as affected by market forces was held in Asheville, N. C., sponsored by the Agricultural Policy Institute at North Carolina State. The conference brought in speakers from across the United States to discuss pertinent issues and developments in the milk marketing system. Over one hundred industry personnel participated in the meeting. This conference was planned and executed largely by Extension Project IV personnel (H. A. Homme, AMA; M. E. Gregory and W. M. Roberts and Charles Pugh, Project III).

The new poultry processing specialist has made a study through plant visitations of the present organization of and levels of technology used in the poultry processing industry of the state. An information bulletin is being prepared for distribution from data submitted by poultry processors. A pamphlet dealing with factors affecting shell egg quality is being prepared for egg producers and processors (F. R. Tarver, Jr., AMA).

#### V. Knowledge of Marketing Technology

The objective of this area of work is to teach marketing firm personnel technical skills necessary in performing marketing functions.

A. Technical processes - With the cooperation of an industry supplier of liquid nitrogen, a container manufacturer and a large shrimp operator, methods were explored in the use of liquid nitrogen as a refrigerant in lieu of ice. After preliminary trials and cooperative effort, it appears that this new technique is feasible and that costs can be competitive with ice. Fresh shrimp quality and sanitation can be greatly improved by the



use of these newer techniques. An educational program has been carried on throughout the seafood industry to encourage the handling of fresh iced shrimp and fish from catch to the dock and from dock to market so as to insure higher quality. Procedures to achieve shorter holding time, more adequate icing, temperature and humidity control and other similar quality improving measures have been set forth (F. B. Thomas).

During the past year, four tours of ham operations under controlled conditions were given to those interested in producing a quality country ham. Plans for ham house construction and fumigation were prepared in cooperation with the Agricultural Engineering and Entomology Departments. Assistance was given the meat packers of the state in getting proper chill on fresh hams to prevent spoilage in cured country hams. Several meat packing companies were assisted in developing procedures for air-dried country sausage curing. One packer was assisted in solving a problem on peelability of franks and the use of equipment to insure constant quality in processed meats (J. A. Christian, R. M. Ritchie of Project III and T. N. Blumer, Research).

Four country ham curing firms were given assistance in developing improved plant layout and determining equipment capacity. Several freezer locker plants were provided technical assistance in converting zero storage space into bulk refrigerated space (J. A. Christian and J. F. Wiles).

A retail food chain and its packer supplier were assisted in developing an educational program on meat cutting and boning with emphasis on muscle boning (J. A. Christian).

An educational program was developed with the milk dealers of the state on sources of product loss in the milk plant. One plant was assisted in

developing a product loss check system through which product losses were sharply reduced (M. E. Gregory).

Assistance was given to the recently established sweet potato flaking plants in the proper operation and maintenance of equipment. One plant was also assisted in converting its product conveyance system to a pneumatic process with resulting improvement in product quality and sanitation at a reduced cost. The newest sweet potato flaking plant was also given assistance in developing a quality control program (N. C. Miller, AMA and M. W. Hoover, Research).

Assistance was given a pickle plant in setting up a processed pepper line and in training of personnel to operate this line. This pickle plant has in this way reduced product spoilage (N. C. Miller, AMA).

Assistance was given to one North Carolina bakery firm which was interested in marketing chicken pot pies. A study of inspection requirements, equipment needs and plant layout was made. This project was successfully concluded in about three months. A periodic follow-through is being maintained (J. F. Wiles, F. R. Tarver, Jr., AMA).

A work Simplification Training Conference for Food Processing Plants was continued during the year, primarily in the dairy and meats commodity areas. Two formal talks to dairy plant managements were given to make the availability of this service known, although it is designed for supervisory and operating personnel. Twenty visits to individual food processing plants were made to assist technical personnel with problems in methods, economical operations, equipment care and processing procedures and schedules. All training work was performed along with our commodity specialists (J. F. Wiles).

A sawmill operator was assisted in appraising the potential returns to a log debarker and chipper and in installing and training personnel in the use of this equipment. Three sawmill firms were assisted in developing product lines making use of what was formerly waste products. One sawmill operator was assisted in planning an analysis of the technical characteristics of his dry kiln operation to determine the source of poor quality and low volume of output. A short course on kiln drying of lumber was developed and presented to the softwood lumber manufacturers. Special training aids developed for this short course have been adopted for use in the training programs of the U. S. Forest Service, Forest Utilization Research Service and dry kiln manufacturers. A special study was made of sawyer performance in sawmill operations from which headsaw production standards for the industry were developed. Two lumber firms were assisted in developing input-output data on various operations and in planning alternative machine systems and plant layouts (W. E. Keppler, L. H. Hobbs and W. T. Huxster, all AMA).

B. Sanitation - A continuing educational program has been established on sources of unsanitary conditions in seafood plants and means of correcting these conditions (F. B. Thomas).

The meats specialist conducted a program of improved sanitation in meat packing and processing plants. Emphasis was placed on reduction of losses in country cured ham plants from bacterial growth and insect damage. More than forty intensive individual plant visits were made in this effort. In addition, information on cooler capacity, minimum cooler temperatures and sanitary processing techniques were distributed extensively to meat processing firms (J. A. Christian).

The Dairy Products Specialist worked with individual plants and suggested improvements to facilitate plant sanitation. He made housekeeping and plant sanitation surveys of interested plants; sending his observations and suggestions to management personnel concerned with plant sanitation. This "outside view" is helpful to management who sometimes cannot see "the forest for the trees." Approximately twenty-five housekeeping inspections were performed in 1963. The Specialist was instrumental in planning and carrying out the Food Sanitarians Short Course in cooperation with the State Board of Health. This short course trains food sanitarians throughout the state in the area of plant sanitation. Twenty-six sanitarians participated in the short course in 1963. In addition, the North Carolina Dairy Technology Societies were assisted in their program to keep industry personnel and sanitarians abreast of new developments in sanitation (M. E. Gregory).

A pickle plant was assisted in using flumes and pumps to improve plant sanitation. This plant has followed the recommended practices resulting in a cleaner plant with less product loss due to spillage (N. C. Miller, AMA).

C. Quality Control - A study of scallop quality and methods of determining moisture absorbed during soaking has been handled on a cooperative basis with Dr. A. F. Chestnut, University of North Carolina Institute of Fisheries Research, Morehead City. Trials indicate that a refractive index, temperature rise on heating and other indices under study may give us a satisfactory determination of the presence of additional water in scallops (F. B. Thomas).

A cottage cheese clinic was conducted in 1963 to improve evaluation of quality. Industry personnel were given the opportunity to evaluate samples of cottage cheese and compare their evaluations with that of an authority who was invited to the meeting to assist the Specialist. A total of 108

plant consultations on dairy product quality evaluation and control were made in 1963. Thirty consultations were conducted in the Specialist's office (M. E. Gregory, W. M. Roberts and F. G. Warren, Research).

D. New and Improved Products - Vacuum packaging of sliced country ham has increased country ham volume in North Carolina. The shelf life of country ham has been more than doubled by vacuum packaging. Several additional ham curers are considering putting in vacuuming equipment for country hams. One firm has been assisted in exploratory cooking of country ham and merchandising of cooked country ham by using vacuum packaging. A report on "Improving Shelf Life of Packaged Country Ham" was sent to every ham curer in North Carolina with recommendations on how to increase shelf life of packaged country ham. During 1963 ten demonstrations were given on "Proper Use and Merchandising of Cuts of Beef, Pork and Lamb" (J. A. Christian and J. F. Wiles).

The Dairy Products Specialist in cooperation with research personnel has formulated and developed a new product - a low-fat creaming agent called "coffee creamer." This product has been approved by the North Carolina Department of Agriculture. It is presently being processed and sold in North Carolina and South Carolina by a North Carolina firm. It is packaged in individual portions for use in coffee as a creaming agent (M. E. Gregory and J. I. Middleton and J. D. Moore of Research).

Assistance was given to a sweet potato flake manufacturer in developing a retail package. Because of the susceptibility of this product to oxidation, distribution had formerly been limited to an institutional pack. The retail package is now being merchandised and development of retail distribution of this product is continuing. One processor was assisted in initiating

commercial production of a diced pepper product using a process developed in the fruit and vegetable research section of the Food Science Department. Contacts have been made with local firms on the possibility of introducing new dehydrated pie mix blends into commercial trade. A new process for frozen apples developed by our research section was introduced into commercial production. Assistance was given in properly setting up the equipment, installing proper technical procedures and in assisting personnel in changing from the routines of the previously used process. Satisfaction with the process was expressed by the management and the entire production for the coming season will be manufactured utilizing the new procedure (N. C. Miller, AMA).

A poultry processing plant was assisted in establishing a shipping schedule to maintain product quality (F. R. Tarver, Jr. and J. F. Wiles).

An analysis of a sawmill operator's problem of consumer complaints on lumber grades resulted in improved in-plant movement of lumber so that more time was allowed the grader. This resulted in a marked improvement in uniformity of lumber grades (L. H. Hobbs, AMA).

E. Waste Disposal - Three seafood plants were assisted in a program of in-plant reduction of waste load by diversion of inedible wastes to secondary products (F. B. Thomas).

Plans are being made for a short course in waste reduction in dairy plants (M. E. Gregory and J. F. Wiles).

In cooperation with the North Carolina Department of Water Resources, a new type waste disposal system was installed at a sweet potato flaking plant. Provisions have been made to evaluate the costs and effectiveness of this system. Preliminary indications are that substantial economies can be effected (N. C. Miller, AMA).

## VI. Other Work

One of the major problems faced by our fruit and vegetable processing firms is that of scheduling in-plant operations in an efficient manner given the status of procurement or supply of raw materials. The fruit and vegetable processing specialist has cooperated closely with production specialists so as to relate in-plant requirements to programs to improve raw product procurement operations (N. C. Miller, AMA, and H. M. Covington and J. H. Harris of Project III).

There is a shortage of personnel trained in food processing technology. This shortage creates a real problem for the food processing industry in upgrading the quality of its operations. The Food Science Extension staff participate continuously in a program to increase enrollment in the Food Science curriculum and related disciplines at North Carolina State. Visits are made to the high schools of the state, civic clubs and other organizations for the purpose of explaining both training offered and job opportunities for those who receive this training.

Extension personnel also participate in the School of Agriculture and Life Sciences annual Open House program in which all high school juniors and seniors are invited to visit the campus on a specified day to learn of educational and employment opportunities in agriculture and related occupations. All Project IV Extension staff members participate in this activity.

The county of Carteret, one of our coastal counties, was assisted in developing a proposal for an Area Redevelopment Act Technical Assistance grant for support of a program to develop the seafoods industry. Part I of the proposed program was designed to develop the fishing and raw product

procurement industry. Part II of the proposed program was designed to develop marketing and utilization of seafoods (F. B. Thomas).

The North Carolina Restaurant Association was assisted in planning and executing a study of the present use of and factors limiting use of seafoods in North Carolina restaurants. The seafood processing specialist was appointed by the Governor as a member of the Commercial Fisheries Study Commission (F. B. Thomas).

The wood products specialists participated in a wood utilization conference at the request of the Federal Extension Service. The objective of this meeting was to bring together all state and federal agencies concerned with technical and economic assistance to wood products industries in the New England region. The specialists presented an encapsulation of the Pilot Wood Products Marketing and Utilization training program which served as a starting point for discussion and planning of a New England regional educational and service program. In cooperation with the Federal Extension Service these specialists also assisted specialists in the following states with their program orientation: Louisiana, Mississippi, Missouri, Ohio and Oregon. A color-sound training film entitled "Sawmill Systems Analysis" is being developed under an FES contract. The film is to serve as a supplement to the educational materials developed thus far. Display materials were prepared for the annual State Fair which featured a theme of Forestry and Wood Product Industries. An instruction manual and a short course are being developed to teach the application of yield research to furniture industries. The U. S. Department of State was assisted in conducting an inspection and training visitation for a Turkish Forestry and Wood Products Specialist. The Commerce and Industry Division of the N. C.



Department of Conservation and Development was provided technical information for use in assisting new and potential wood products enterprises establishing in the state (W. E. Keppler, L. H. Hobbs and U. T. Huxster, all AMA).

Five meat-type hog programs were executed in which the meats specialist supervised the carcass contest and evaluation of the carcasses for the certification programs. Demonstrations were given on cutting of pork carcasses to illustrate desirable and undesirable characteristics and showing the difference in actual value of carcasses (J. A. Christian).

The Agricultural Policy Institute is located within our Department of Agricultural Economics. The purpose of this Institute is to provide an educational program on public policy issues in the South. As an integral part of that department, Project IV marketing economists have participated actively both in developing general guidelines for the Institute activities and in planning and executing the numerous conferences and publications of the Institute as they relate to marketing problems (all Marketing Economics personnel including AMA).

The Marketing Economics group has written extensively during the year. Following is a partial list of their publications and manuscripts:

Computation of Derived Demand Prices and Associated Data for Specialized and Multiple Product Processing Plants, R. D. Dahle and Anne S. Best, Department of Agricultural Economics, Miscellaneous Publication, July 1963.

An Analysis of the North Carolina Seed Corn Industry, T. E. Nichols, Jr. and R. D. Dahle, Department of Agricultural Economics Miscellaneous Publication, June 1963.

The Most Profitable Market for Sweet Potatoes, E. A. Proctor, Department of Agricultural Economics Miscellaneous Publication No. 9.

A Checklist for Roadside Produce Stand Operators, E. A. Proctor, Department of Agricultural Economics Miscellaneous Publication (manuscript).

How North Carolina Growers Can Save Money Hauling Sweet Potatoes, E. A. Proctor, Department of Agricultural Economics Miscellaneous Publication (manuscript).

Costs and Returns from Sweet Potato Curing and Storing Operations, E. A. Proctor, Department of Agricultural Economics Miscellaneous Publication (manuscript).

Feed Grain Programs' Impact on North Carolina Agriculture, C. R. Pugh and T. E. Nichols, Jr., Department of Agricultural Economics Miscellaneous Publication No. 4, January 1963.

Development of the Economic Potential in Agriculture in Northwest North Carolina, E. W. Jones, C. R. Weathers, R. D. Dahle and T. E. Nichols, Jr., Agricultural Policy Institute, March 1963.

"Milk Distribution Costs," H. A. Homme and R. L. Simmons, Looseleaf Notebook.

Cattle on Feed, G. R. Cassell, Department of Agricultural Economics, Mimeograph, March 1963.

Proceeding, 1962 Institute for Cooperatives, edited by R. S. Boal.

Personnel of the Marketing Economics staff were active in organizing and developing the program of the Southern Extension Marketing Committee (G. L. Capel and R. D. Dahle, AMA).

## VII. Special Problems

Coordination of work of the economists and technologists within Project IV, coordination of work of personnel of Project IV with that of personnel of Projects III and VIII and difficulties in employing qualified personnel are continuing problems in the conduct of Project IV.

Many of our more important problems in marketing and utilization require the close coordination of the work of economist and technologist. In addition, many problems in the marketing and processing of farm products involve the characteristics of the product and the characteristics and behavior of the farm producing units. In order to promote closer cooperation among the disciplines and projects, special teams have been established to work on

well identified problems in which joint effort is essential. In those cases in which the problem is identified with a geographic area, the affected District Agent and/or county extension personnel have been appointed to the committee to assume program responsibility. The District Agent has been made committee chairman in some instances to encourage closer working relationships with county personnel and to provide a closer observation of field results (J. C. Williamson, Jr.).

At the beginning of the year, vacancies existed in poultry processing, economics of retailer education, fruit and vegetable marketing economics (processing), and cotton utilization (two vacancies). During the year, additional vacancies from resignation or transfer of personnel occurred in poultry and cotton marketing economics. One consumer marketing specialist went on leave of absence for two years. We were only successful in filling the vacancies in poultry processing and cotton marketing economics, leaving a total of four unstaffed positions.

In the case of the two vacancies in cotton utilization, our inability to hire qualified persons grows out of the fact that academic salary scales are well below those in industry. In the case of the vacancies in marketing economics, we have offered salaries competitive with those being paid in teaching and research positions in government and land-grant institutions. The difficulty in this discipline appears to arise primarily from the attitude of qualified young men toward extension as opposed to research and teaching. They have several biases against extension employment. Their view appears to be: (1) The work in extension is quite different from that in which they engaged in their graduate program whereas research and teaching is similar. (2) Opportunities for writing and publishing and

for achieving professional recognition and advancement are better in research and teaching. (3) Opportunities for personal satisfaction in one's work are less in extension. Many will seriously consider extension employment only if it is joint with research and/or teaching. We have, of course, adhered strictly to the principal that we will maintain a standard of professional qualification comparable to that in the best teaching and research organizations

In the past two years we have raised our salary offers to keep pace with the general advance in competitive positions, other than in cotton utilization. In addition, we have assured all present and prospective employees that some areas of creative investigation which provide opportunities for writing and publishing and professional recognition are a legitimate part of their extension work, particularly those investigations which contribute directly to the development of program content for an effective extension educational program. We have also actively encouraged extension personnel to seek opportunities to participate in the research projects of their Experiment Station counterparts whenever a project lends itself to their participation and directly enhances the program content of their extension program. We feel that our efforts have been very effective in influencing positively the thinking of our present staff. However, prospective employees are heavily influenced by the image of Extension as they have observed it in other institutions. It is our expectation that our efforts and the efforts of other State Extension Services and the Federal Extension Service will improve the image of Extension nationally and help to ease our employment problem.

VIII. Contributions to Other Projects

<u>Name</u>	<u>Other Project Contributed To</u>
J. A. Christian	Project III (Livestock production improvement) and Project V (Homemakers understanding of meat quality characteristics)
R. S. Boal	Project VI (4-H work on cooperative principles)
M. E. Gregory	Project III (Dairy production)
N. C. Miller (AMA)	Project III (Fruit and vegetable production to meet processing plant needs)

In addition to these contributions to other projects, there has been mutual benefit to the projects in Home Economics, Agricultural Production, Management and Resource Use, Youth, Community and Public Affairs and County Operations, and to Project IV as well, from cooperative efforts on inter-dependent problems.