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VIRGINIA AGRICULTURAL EXTENSION SERVICE

PLAN OF WORK

FRUIT AND VEGETABLE PROCESSING AND BY-PRODUCTS

1959

ASSISTANT EXTENSION FOOD TECHNOLOGIST

Time Devoted to Extension - 75%

MAJOR PHASES OF PROJECT:

1. Commercial Canning
2. Commercial Freezing
3. Locker Plants
4. Institutional Food Processing

Date Submitted: December 31, 1958 Signed: Littleton Johnson
Project Leader

Date Approved: Dec 31, 1958 Signed: Wesley P. Judkins
Head of Department

Date Approved: 1/22/59, 1959 Signed: W. D. Dougherty
State Director of Extension

Date Approved: MAR 3 1 1959, 1959 Signed: C. M. Ferguson
Administrator, Federal Extension Work
U.S. Dept. of Agriculture

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PLAN OF WORK FOR 195 8

I. ANALYSIS OF PROJECT SITUATION.

A. Commercial Canning.

The Virginia Department of Agriculture lists 77 fruit and vegetable canneries in this State. Of these 77 canneries, 30 of them are primarily tomato canneries, 11 of them are primarily apple canneries, 6 of them can sweetpotatoes, and the others process products such as pickles and greens. Some of the canneries that are listed as tomato canneries also process other fruits and vegetables, and some fish.

The situation in the apple processing plants is generally good with respect to quality and sanitation. There are some improvements in both fields which can be made, but generally these plants are in a position to remedy this situation themselves, since they are fairly large companies and employ food technologists and other technically trained personnel.

It has been estimated that between fifty and sixty percent of the apple crop in Virginia is now going into processing channels. It is expected that this percentage will increase in the years to come, for the housewife is using more and more canned apple products each year. The production of canned apple slices as well as canned applesauce has increased generally since World War II.

The tomato canneries present a different situation. Most of these canneries are small and operate only six to eight weeks out of the year. Very few of them employ technically trained personnel for their quality control work, and so they rely heavily on the food processing section of the Department of Horticulture of Virginia Polytechnic Institute, for up-to-date information on quality and sanitation.

The general trend in tomato production for canning has been generally downward in the State of Virginia since 1944. However, after hitting a low in 1953, the production trend turned upward, and an estimated 60,000 tons of tomatoes were produced for the canneries in Virginia in 1958. This is the largest amount produced for canning since 1951. Yields of tomatoes for canning still average approximately four tons to the acre, which is rather low. This low yield per acre affects the quality of the tomatoes as well as the quantity available.

The tomato canning industry is centered in four distinct areas of the State. These areas are centered around the Northern Neck, Bedford County, Page County, and the Eastern Shore of Virginia.

The tomato canning industry is an important segment of the agricultural economy in the four areas mentioned. Most of the producers, as well as the canners, are rather small, and tomatoes are considered as a cash crop to bolster the family income. During the processing season many workers are employed in the fields and in the canneries, and their wages also affect the economy of the area. In 1958, the total value of the raw tomatoes canned was $1,370,000. This represents the money that the farmers realized for their raw products, and does not include the wages earned by workers in the canneries.

If the industry is to prosper, considerable work must be done to improve the sanitary aspects and efficiency of the canning operation, and the quality of the pack. The fruit and vegetable processing and by-products project can play an important part in these improvements. In the field of sanitation, the enforcement of the Virginia Food Law has done considerable during the past year to improve the over-all sanitation in the canneries. The Extension Food Technologist should work with the canners in helping them meet the requirements of the Virginia Food Act.

Virginia canned tomatoes still do not enjoy a very enviable reputation for quality. The over-all quality is improving, but much work is still to be done. While Rutgers is the main variety grown and canned, and while it appears to be the best variety available at present, it is still not good enough. A tomato is needed which will have more red color and which ripens evenly all over. Color is one of the limiting factors in the grades, and it has been very difficult to obtain canning tomatoes with good color during the past few years due to the weather conditions and the disease situation.

The fact that several meetings were held during the past year to discuss the plight of the tomato industry in Virginia and especially in the Northern Neck Area, and that many canneries have improved in sanitation and are becoming quality conscious, shows that the canners in the State are anxious to continue canning tomatoes, and that they do desire to can as good a product as possible. There is still considerable work to be done in this field, and a major emphasis should be placed on quality and sanitation in this project.

Canners of sweet potatoes generally do a good job; however, there is need of work designed to improve the quality of sweet potatoes for canning. A sweet potato is needed that will remain firm after processing. This need for work on evaluation of sweet potato varieties for processing arises in order to keep the quality of Virginia canned sweet potatoes up. A major emphasis should be placed on the quality and suitability of sweet potatoes for canning in this phase of the project.

B. Commercial Freezers.

Several firms in Virginia freeze various fruits. These fruits are frozen for the institutional trade, and very little is frozen for the retail market. These firms are freezing a good quality product, and are anxious to keep up with advances in their field.

C. Locker Plants.

The locker plant situation remains unchanged from the past several years. There are approximately 70 locker plants operating in the State, and most of them are operating on a sound basis. For the most part, these locker plants are not set up to process fruits and vegetables for their patrons. Their chief business consists of slaughtering, curing, and freezing meat and poultry. If a patron desires to freeze fruits and vegetables, it is necessary for him to process them for freezing himself. The packaged fruit and vegetables are then taken to the locker plant to be frozen and stored. Most locker plant operators seem to be reluctant about getting involved in the fruit and vegetable processing field.

D. Institutional Canneries.

The institutional canneries have made great strides in the past two years, and are in better condition now than ever before. Much of this improvement can be contributed to the canners' schools held during the last two years for the institutional cannery operators. A definite interest in canning has been developed in the operators of these canneries, and they are beginning to understand not only how to can the various food items, but also why the various processes are necessary in the canning operation. The institutional canneries play a very important part in the feeding program at the State institutions, and the need for adequate processing equipment should be stressed in this project.

II. MAJOR PROBLEMS

A. Commercial Canning.

1. Many canneries still need to improve the sanitary aspects of their operations.

2. The quality of Virginia canned tomatoes is still low.

3. The quality of sweet potatoes for canning and the firmness of the canned product are both low.

4. Canners need to be kept informed of new developments in their field.

B. Commercial Freezers.

1. Commercial freezers need up-to-date information on new developments in freezing.

C. Locker Plants.

1. Locker operators need to be kept informed of new developments in their field.

D. Institutional Canneries:

1. Some institutional canners are still inadequately trained.

2. Some institutional canneries are inadequately equipped.

3. The quality of some foods canned is still too low.

III. WORK TO BE DONE AND METHODS OF PROCEDURE.

A. Commercial Canning.

This portion of the project will receive a major emphasis again this year. Most of the work will be concentrated on the tomato and sweet potato canneries.

While it will be necessary to deal directly with the canners in many cases, an increased effort will be made to work through the County Agents in the dissemination of information to the canners. A series of plant visits will be made during the canning season, and it is hoped that the County Agent will be able to be present on these visits. The County Agent is an effective link between the canner and the grower, and a thorough understanding of the canners' problems is essential in the Agent's work with the growers.

The use of newsletters will be employed as one tool to get information to the canners. These newsletters will emphasize problems with respect to quality and sanitation, as well as discussions of basic canning principles. This material will be distributed to the canners through the County Agents.

Cooperation will be maintained between the Food Inspection Supervisor of the Division of Dairy and Foods, Virginia Department of Agriculture, and the Extension Specialist. The Food Inspection Supervisor will keep the Extension Specialist informed of any changes in the Virginia Food Law, or any problems arising under it. The Extension Specialist will work with the industry to promote compliance with and understanding of the State laws relative to sanitation.

Emphasis will be placed upon cooperating with the personnel of the Experiment Station in research designed to evaluate sweet potato and tomato varieties for processing through pilot plant canning. This research will consist chiefly of evaluating the results of variety tests in an attempt to emphasize quality for processing. The Extension Specialist will also keep the Experiment Station personnel informed of any conditions arising in the field of raw product quality, in an effort to secure research work designed to overcome these difficulties.

It is anticipated that some time will be spent working with the apple canning industry in the State when the results of the recent Experiment Station project on apples becomes available. This project is attempting to show the relationship that exists between tree run and table sort apples for processing, and to determine if the apple processing industry is justified to purchase these two classifications of apples on a different price basis. The work will consist of evaluating these results and explaining them to the canners and interested growers so that they can make maximum use of this work.

B. Commercial Freezing and C. Locker Plants.

These plants will be visited as time permits to keep abreast of the situation. Circular letters will be sent to these operators through the County Agents' offices as material of interest to them becomes available in this office.

D. Institutional Canneries.

The Farming Coordinator of the Department of Welfare and Institutions has again requested assistance with the institutional cannery program. The work this year will consist of a follow-up of the schools conducted during the past two years, and will be accomplished by means of plant visits during the canning season. The Extension Specialist has also been requested by the Farm Coordinator to assist him in the selection and placing of new processing equipment for the new institutional canneries as they are constructed. By spending time with the cannery operators during the actual processing operations, considerable information can be given to the operator on the use of such equipment, and on improving the quality of his product. Printed information concerning the processes involved in canning various foods will be distributed to the institutional canners as requested.

IV. RESULTS EXPECTED AND METHODS OF MEASURING.

While considerable improvement was made in the field of sanitation in the canneries during the past year, it is anticipated that additional improvement will be made this year. This can be measured by the number of plants adopting approved practices, and by noting the number of seizures or sale stoppage under the Virginia Food Act. The Department of Dairy and Foods will publish information on seizures and sale stoppages each month in a Department bulletin, and the decline in the number of cases should be positive evidence of improvement in the field of sanitation.

Measuring quality improvement is more difficult, since so many factors enter into it, and since over-all quality figures are not published. However, a list of seizures of sub-standard foods will also be published in the monthly bulletin of the Department of Agriculture, and again, a decrease in the amount of sub-standard food seized will show an increase in the over-all quality. A survey of quality and practices during the canning season will also show any improvement in general quality of the pack.

Little change is expected in the commercial freezing and locker plant industry.

It is expected that the institutional canners will strive to better the quality of their pack. This can be shown by visiting them during the processing season, and by observing the quality of the foods packed, and by the adoption of approved practices and equipment. The Farming Coordinator for the Department of Welfare and Institutions can also be of great assistance in evaluating the improvement in the institutional canneries.

V. PROJECTED PROGRAM NEEDS.

There will always be a need for the improvement of the quality of the pack, and for better sanitary practices in the canneries. New methods and equipment are being developed and the industry must be kept informed of them. Food preparation in the home is also changing, for the housewife is using more prepared foods than ever before.

As the quality of the raw product improves, it may prove desirable for some of the canneries to switch from canning whole tomatoes to canning tomato juice, catsup, or some of the other prepared foods. However, this change cannot take place until there is a great improvement in the quality of the tomatoes. Other new products may be developed which may be of interest to the canners in this State.

The ultimate goal of this project is to enable the Virginia housewife to secure high quality and nutritious foods, which have been packed in a clean, sanitary manner, at a moderate price. Other problems in reaching this goal and interest in the solution of these problems can be developed by discussions with canners, growers, and consumers, food inspectors and graders, County Agents, and by discussions with other food technologists throughout the country. Interest in other problems can also be developed at canners' meetings, at schools, and by circular letters and visits.