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Community Canning Centers: A Project Profile in  
Community Economic Development

by: Stephen Klein

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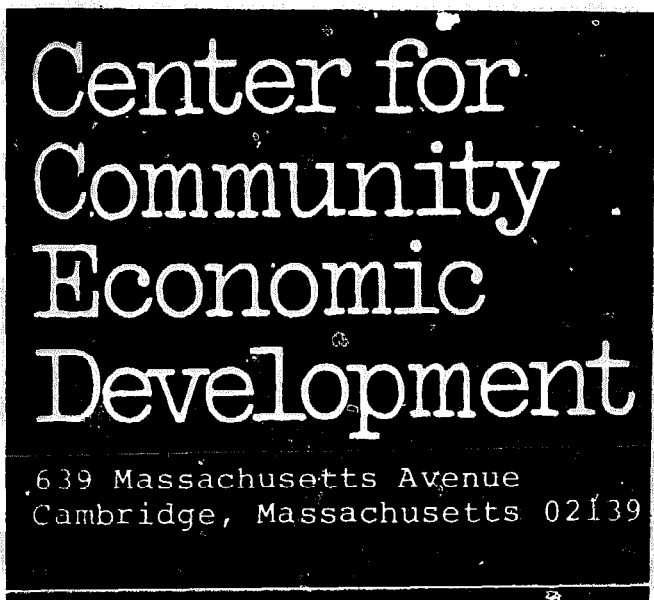
# Community Canning Centers

A Project Profile in  
Community Economic  
Development

STEPHEN KLEIN

Center for Community  
Economic Development  
Cambridge, Massachusetts

1977



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## ACKNOWLEDGEMENTS

This study of community canning centers was put together with the help of many people. The research and publications staff of the Center for Community Economic Development went well beyond their contractual responsibilities to bring this study forth. Stephan Michelson and Sandra Bailey provided both enthusiasm and useful criticism on my drafts. Leona Robbins and Dinah Shatz did an incredible job in editing and pushing this publication through so it would be out well before the 1977 growing season. Sandra Congelton of the Department of Urban Studies and Planning at MIT also shared in the typing, editing, and other burdens such a project entails. My special thanks go to Edward Hill and Mark Schuster of the Department of Urban Studies and Planning at MIT. They encouraged me to undertake this study and provided constant support as the end product took form. All the groups listed in Appendix 3 participated by providing interview time or by reviewing this report. Among those community and business people, I would like to acknowledge the following individuals who were constantly available for questions and very helpful in their comments: Roger Sternberg, The Bread and Law Task Force; Judy Gillian, Women in Agriculture; Rev. Roger Plant, Vermont-New Hampshire Agricultural Coop; June Smith, Washington County Community Cannery; Robert Szathmary and Bob Turner, The Southwest Virginia Community Development Fund; David Meeks, Ball Corporation; and Terry Stapleton, Dixie Canner Equipment Corporation.

To these people and all the others who made this study possible goes the credit. Any weaknesses are my own.

Stephen Klein

## TABLE OF CONTENTS

INTRODUCTION	1
History of Small-Scale Canning	3
The Canning Process	7
COMMUNITY CANNING CENTER VARIABLES	9
Variable 1: Cans or Jars	9
Variable 2: Self-Service or Staff-Canned	13
Variable 3: Production for Commercial or Noncommercial Use	14
THE EIGHT DIFFERENT MODEL POSSIBILITIES	18
Model Combinations	26
THE COSTS AND BENEFITS OF COMMUNITY CANNING	30
APPENDIX 1: CALCULATING CONSUMER SURPLUS AND PROJECTED COSTS	36
APPENDIX 2: GENERAL TECHNICAL CONSIDERATIONS	43
Equipment Sources	43
Labor Requirements	45
Health and Insurance Regulations	46
Local Requirements	47
APPENDIX 3: CENTERS CONTACTED FOR STUDY--TYPE OF OPERATION AND FUNDING; ADDRESSES	49
BIBLIOGRAPHY	54
 <u>ILLUSTRATIONS</u>	
Exhibit 1: A Typical Fee-Cannery Ad	5
Chart of Canning Center Variables	17
Figure 1: How the Eight Basic Models Were Derived	18
Exhibit 2: Tazewell CCC Breakdown of Cannery Use	23
Exhibit 3: Botetourt Community Cannery Newsletter	28-29
Table of Projected Monetary Savings	33
Table of Projected Monetary Costs	34-35

## INTRODUCTION

The research and interviews for this study were carried out between June and November, 1976. We visited community canning centers in Vermont, New Hampshire, Massachusetts, Tennessee, and Virginia, and interviewed by telephone community sponsors of other centers in North Carolina, North Dakota, Florida, and Georgia. We also surveyed the existing literature to learn from it what information existed and what was lacking. The staff of the Dixie Canner Equipment Company and the Ball Corporation were helpful in supplying information about their experiences with small-scale canneries.

An effort has been made to remain accountable to the primary information sources. A draft of this study was circulated to many of the above mentioned groups for review and criticism, and their comments have been incorporated in this final publication. All groups and information sources contacted have been included in the bibliography.

Because of the recent surge of interest in community canning, we undertook this study on a very optimistic note. We hoped to be able to show that not only were community canning centers excellent projects because of their beneficial impact on community residents, but that they were feasible as self-sufficient business ventures. This turned out not to be the case. Community canning centers do provide community users with benefits that range from higher quality food and greater food self-reliance to actual monetary savings. They are not, however, self-sustaining. All centers visited were subsidized. While some were attempting to reach self-sufficiency, they all must still rely on some form of outside help.

Community canning is at best a marginal business enterprise. Its

financial stability is affected to a large degree by a number of uncontrollable variables. The supply of produce is dependent on the weather; its distribution on the availability of alternative markets or uses that the community growers might have. Inasmuch as prices for tin cans and for other canning center equipment are set by equipment producers, they too are ungovernable.

Community groups that have sponsored community canning centers (CCCs) attest to their high visibility. These projects provide very direct benefits to both community food producers and food consumers, and in very little time become one of the most well-known community institutions. The centers we investigated were owned by or operated for community residents. The sponsoring agencies included food co-ops, community development corporations, school districts, counties, community action agencies and individual state Department of Agriculture extension programs. Depending on the funding sources and the type of operation, these CCCs employed between two to fifteen staff workers. The centers varied from those that provided equipment and supervision so that community people could bring their own produce and process it for home use, to centers that were vertically integrated (that is, grew and processed the produce, and sold the finished product).

All community canning centers are small-scale operations. Yearly volume varies from 7,000 to 212,000 quarts. They use glass jars and/or tin cans and most of the equipment is hand-operated. All centers require some level of community participation in the production process. The extent to which users participate depends on both the design and orientation of the center. All centers are designed to process locally grown produce for local and regional consumption.

Community canning centers have received considerable funding and subsidization support. This interest and financial backing stems from a number of factors, which include:

- the rising cost of food, which has led to more community and family gardening;
- an increasing concern over food additives and the chemicals used in producing commercial food. Home and community canning allows

- each family to control what is in the food it eats;
- increased energy costs, which have made home canning and freezing less economical;
  - a growing sentiment for community control and self-reliance in food production. This is in part due to the more frequent occurrence of transportation and food processing industry strikes, as well as to the fear of another oil or energy crisis and its potential effects on national food availability;
  - a renewed interest in the importance of establishing a sense of community that has led to recognition of the role of the community canning center in bringing people together.

### History of Small-Scale Canning

Interest in CCCs has revived after a long period of neglect. The same concerns which led to their creation in the 1930s are motivating people today.

In the depression years, with the collapse of the national economy, people were forced to provide for more of their own needs. This stimulated home canning, a process that allows a family to utilize its own labor resources and the produce from family gardens to fill a larger part of their food needs. Nevertheless, home canning was relatively costly, since each family had to buy its own ten-gallon metal canner and utilize its own stove. During that period, however, the Ball Brothers of Muncie, Indiana, whose main business was the production of glass canning jars, developed a small canning center suitable for community purchase and use. This reduced the capital investment each family had to make. These initial community canneries became a popular project for Work Projects Administration program support.

Community canning centers were also extremely important during World War II. Citizens were encouraged to plant victory gardens to increase food production. Small canneries were developed as an important contribution to our total food supply. A variety of emergency agencies sponsored these community canneries, which totaled 3,600 by 1946. A large number of them were in the southern states, with a heavy concentration in the Piedmont region. This fertile farmland was a major source of



produce for the eastern United States. Most of the 50-odd Virginia canneries and the 97 state-sponsored Georgia canneries were begun during these wartime years.

At the same time, concern for self-sufficiency in food production spread to a number of state institutions. New England area hospitals and prisons had extensive institution-run farms and processing centers. Prisons such as the Billerica County Prison and the Concord Reformatory in Massachusetts provided for virtually all of their own food needs.

With the end of World War II the food production capacity which had been created was greater than national peacetime demand. Funding for the wartime community canning centers dried up, food prices fell, and people returned to commercial food markets. Virtually no new community start-ups occurred, and outside of the South small-scale canning all but died.

The southern canneries that survived were run by area schools and county governments on a community self-service basis. The cannery's presence in these communities became institutionalized, with the state government playing a major role in covering labor and administration costs.

During the 1950s and through the late 1960s a large number of small private canneries closed down. Canning became more and more centralized, with companies such as Del Monte and Hunts acquiring larger shares of the market. From 1958 to 1972 the number of private canneries nationwide dropped from 1,630 establishments to 1,038. The smaller firms were a mixture of custom canneries that would process private-label special orders for local markets and fee canneries that operated at a per-hour and per-can rate for any area grower. (See Exhibit #1) Some of these small canneries were owned by small enterprises that ran the canning centers on a seasonal basis. During the rest of the year the cannery workers would be absorbed into the labor force of the associated enterprise. One New England manufacturer ran a cannery during peak season by diverting workers from his clothespin manufacturing business. Another bean trader in Maine had a canning facility to process beans that could not be sold

Boston, Massachusetts 02202

Contact: Guy L. Paris  
727-3018

CUSTOM CANNING

MASSACHUSETTS DEPARTMENT OF AGRICULTURE HELPS CONSUMER  
BEAT THE HIGH COST OF FOOD.

With the local harvest in our midst and heavy supplies of fresh fruit and vegetables reasonably priced, now is the time to do your canning.

Many of us have considered doing this, but, some of us have fallen by the wayside. We have become reluctant to do it, because it involves the buying of jars and other equipment to do the job correctly. Nevertheless, it's one way of beating the high cost of food.

The Department of Agriculture has had several conferences with Collins Food, Inc., of 17 Spaulding Street, Townsend, Massachusetts, regarding this subject. Recently, they have consented to open up their facilities for custom canning.

All of which means that they will "can" your product at a cost of .07 cents per 20-ounce can, which they will provide; plus \$15.00 an hour for operational costs.

You must supply the product that you want canned and have it ready for canning. This can be done at home or at the cannery. The secret of the whole operation is to have as many people as possible involved in order to make it economical.

Parties interested should contact:

Collins Food Products, Inc.

at 597-6625 during the day and 632-5840 at night.

EXHIBIT 1: A Typical Fee-Cannery Ad

in fresh markets due to quality imperfections. The 1973 energy crisis was a death blow to these small operations. The rising costs of energy, equipment inputs, labor, and produce forced most of these businesses to close down.

In the late 1960s and early 1970s interest in community canning centers picked up. Office of Economic Opportunity funds for the war on poverty were channeled into community canning. Dixie Canner Equipment Company, the major manufacturer of small-scale tin can processing equipment, came out with a packaged portable canning center that could be built into a trailer and moved between communities. This turnkey operation was bought by a number of OEO groups both in the South and in the Midwest. Among the CAAs and the old OEO groups that set up community canning centers with Dixie portable equipment were the Mountain Valley Economic Opportunity Agency of Tazewell, Tennessee, the Durham CAA in North Carolina, and the OEO-CAA Emergency Food and Medical Services program on the Pine Ridge Indian Reservation in South Dakota. The Durham CAA cannery alternates between two towns while the Pine Ridge Mobile Unit visits a number of small reservation communities.

During this period, both the Dixie Canner Equipment Company and the Ball Corporation experienced a large increase in sales in their basic food processing canning equipment.

As the war on poverty money dried up and the 1972 economic recession took hold, existing canning centers and community organizations interested in setting up new ones began to concentrate on the development of financially self-sufficient operations. A number of community groups around the country are currently making such an effort. Among these are the Botetourt Community Cannery, Inc., in Buchanan, Virginia, owned by the Botetourt Community Improvement Association, Inc.; the community canning centers initially started by the Bread & Law Task Force in Vermont; and the Abington, Virginia, Community Canning Center, run by the county. A similar attempt was made by a nonprofit cooperative in Crawford County, Kansas.

Community canning centers have not been successful self-sufficient

enterprises. The returns to community canning centers are both qualitative and quantitative (in the form of monetary savings to the users). The center itself receives only the fees it charges to cover costs, and these must be low enough to make canning attractive to these potential users.

### The Canning Process

Canning, in either jars or cans, requires considerable care. Poorly processed food can contain harmful bacteria which produce toxins. Botulism and salmonella are the most well known. To avoid these dangers foods must be canned after being heated at specified temperatures for specified times.

The temperature and time necessary for processing varies with the acidity level of the food. High-acid foods require less processing time than low-acid foods. High-acid foods include apples, berries, peaches, fruit juices, and tomatoes; low-acid foods include corn, squash, meats, fish, asparagus and sweet potatoes. Harmful bacteria do not survive in foods of low pH or high acidity. As acidity drops, however, the danger of the presence of bacteria increases.

The produce or meat is cleaned and then cut in preparation for canning. While some products are heated, most are packed into the can or jar while cold. In the case of tin cans the product to be canned is packed with a liquid level that leaves 1/4-1/8 inch of "head space." Products such as sauerkraut are sealed directly so that they can ferment. Most canned produce must go through an exhauster which "exhausts" all the air in the can through steam heat. The can is then sealed and placed in a retort and pressurizer for the proper time and temperature.

With glass jars the space between the product and the top of the container can be up to one inch. The jars are then sealed and placed in either an atmospheric cooker for high acid foods or a pressure cooker for more bacteria-susceptible low-acid foods requiring higher cooking temperatures. Most jars have two-piece tops; as the product is heated the air vents out.

When both cans and jars have been processed for the proper time they are placed in a cooling bath or spray. As the contents cool, the molecules contract and a vacuum is created which clamps down the top, completing the seal. For commercial operations or on commercial sales of low-acid produce, proper recording equipment is required to verify the time and temperature at which a batch is processed.

## COMMUNITY CANNING CENTER VARIABLES

Community organizations that have started community canning centers have done so using a wide range of equipment types, community participation requirements, and commercial sales components. These decisions depend on a number of factors, such as capital resources, agricultural output, production demand, and the intended group of beneficiaries.

One of the first questions the community group must consider is how the produce will be processed. Will the center use tin cans or glass jars? Next, they must decide if the center will be self service or will maintain a staff to do the actual canning. Then comes the question of end product -- is the community group processing for noncommercial home consumption or will the produce be sold commercially? Most community canning centers in answering these questions have chosen combinations that allow for some flexibility. The CCCs of Abingdon, Virginia, and the Botetourt Community Improvement Corporation in the same state, are examples of centers capable of processing both types of container, while Vermont's Bread and Law Task Force canneries have combined commercial and noncommercial operations using glass jars. The examination of these three variables allows us to understand what considerations are involved in setting up a community canning center.

### Variable 1: Cans or Jars

#### Cans

The tin can technology was scaled to community use through a process of reducing larger commercial equipment into simpler, more labor-intensive machinery. Because of these origins, tin can community canning centers

tend to have fairly high production capacities. The packaged portable cannery built by Dixie Canner Equipment Company can process roughly 800 quarts per day.\* Dixie is the major supplier of small-scale tin can preserving equipment. Dixie's portable cannery was the smallest capacity tin can operation encountered. The community canning centers run by the Virginia school system, which are used both for educational and community service purposes, are more typical. Daily production capacity varies from 1,000-3,000 quarts, depending on the equipment on hand.

The initial investment cost of a tin can operation also varies greatly. In 1972 Dixie's portable canning center, including installation, cost the Mountain Valley Economic Opportunity Agency roughly \$31,000. Today it would cost \$60,000. A county in Southwest Virginia recently set up a new community canning center with a 2,500-3,000 can capacity for \$200,000. The Botetourt Community Improvement Association, Inc., estimates its expenses in setting up the Botetourt Community Cannery at roughly \$20,000. The Botetourt center, with a capacity of 1,500-3,500 cans per day, managed to secure some equipment from the General Services Administration. This, as well as judicious second-hand purchases and the inheritance of a building with some of the necessary plumbing and wiring, helped to reduce their cost.

In discussing both canning center capacity and investment it is important to note that both vary greatly depending on the equipment purchased. A juicer/pulper for tomatoes can dramatically reduce the preparation time and thereby speed up the whole operation. The purchase of an additional retort for pressure cooking the sealed cans also can have a large effect on operational efficiency.

Most tin can operations are housed in fairly large structures. The tin can centers observed in the South averaged about 2,500 square feet in buildings of one to three rooms.

Dixie Canner's portable cannery requires about 750 square feet. The

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\*Estimate from interviews with Dixie equipment users.

Tazewell Community Cannery, however, which uses this Dixie portable equipment, found it necessary to enlarge the space for a more effective operation.

Tin can centers, due to their higher capacity, are best suited to areas where canning is an accepted form of food preservation and the total agricultural output is relatively high. The use of the tin can also eliminates much of its commercial potential. Most markets for locally produced or "specialty" type processed foods tend to prefer glass for aesthetic as well as ecological reasons.

Tin can centers are very adaptable to institutional use. The community canning center run by Washington County in Abingdon, Virginia, is used by two area prisons and one hospital. Prisoners receive two days credit for time served for each one day spent working in the prison gardens or canning prison produce. Their utilization of the community canning center means additional revenues for the cannery, cheaper food for the state and county institutions, and a chance for prisoners to reduce their total sentence while doing garden and cannery work.

#### Jars

The Food Preservation Program of Ball Corporation is the main manufacturer of the glass jar community canning equipment. The Ball compact canning unit was developed from the technology of home canning. Ball has developed a complete canning center sold in one-, two-, and three-unit sizes.\* The standard Ball Jar "unit" advertises a 300-500 quart capacity per 8-hour day. The compact canning unit costs about \$4,800 for the one-unit size. Nonprofit groups get a \$500 discount. Most community canning centers purchase two such units. The two-unit center, including installation costs, is estimated to cost \$15,000. This type of operation has a daily capacity of 400-800 quarts according to Ball Corporation materials. Few centers have reached this volume. Due to the peaking phenomenon of canning because of crop seasonality it would be unusual for a center to operate even close to full capacity for more

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\*See Appendix 2: General Technical Considerations: Equipment Sources



than a few weeks. This has been verified by both self-help and staff-operated centers. The actual volume reached depends on the type of operation (self-service or staff-run) and the products being processed.

Glass jar community canning centers require limited space. A one-unit center in Keene, New Hampshire, is housed in approximately 250 square feet of space, while two-unit centers require a minimum of 500 feet.\*

The basic difference between tin can and glass jar operations is that of cost. Individual tin can containers cost less than glass jars, but this cost is repeated at each processing trip. Glass jars are reusable; since only the seals need replacing, to some extent the purchase price is an investment. Tin cans of the one-quart (#2-1/2) size currently cost 12-14¢, while a one-quart Ball jar and cap sells for 18-25¢.

A number of Ball jar food-preservation centers are being set up in the New England area at present. They are ideally suited for more populated regions with numerous small gardens. The use of glass jars has the advantage of appealing to organic food and specialty markets. Consumer preference even affects the type of glass jar. One community canning center, when trying to decide between nonreturnable glass jars or the standard Ball jar for commercial sales, was told by a wholesaler that returnable glass jars had to be used.

Because of its low cost, the Ball jar is particularly appealing to groups with limited start-up capital. In addition, starting with a small-capacity unit is preferable in areas where community canning has not been available in the recent past. This is borne out by the experience of Botetourt Community Cannery. Their recently revived tin can and jar operation has been processing only 8,000 quarts a season, or about 10 percent of capacity. Many area people who used to can in the old center have turned to freezing or canning at home. While part of the problem may have been that they overcharged the first year, they also

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\*Ball Corporation recommendations are: 1-unit, 820 square feet; 2-unit, 1,540 square feet; 3-unit, 2,260 square feet.

started with a large-capacity center in an area with insufficient demand.

Ball Corporation canning centers are often sponsored and utilized by educational institutions. Both cooperative extension programs and schools have subsidized Ball operations for teaching purposes in classes of home economics and nutrition, as well as for community use.

## Variable 2: Self-Service or Staff-Canned

### Self-Service

Almost all the centers visited ran self-service community canning ventures. In these centers users bring in their own produce and do most of the processing themselves. A self-service operation can be run with one to four employees, depending on the size and type of the canning center. During the early years the amount processed in a self-service center will be less because most of the users will be first-timers. The Shelburne Vermont CCC, run by Gardens for All, Inc., found that during the first year 85% of those participating had never canned before. Naturally, this figure decreases in subsequent years as clients become repeaters. Production capacity is diminished by this participatory format, with the constant inflow of different users. Self-service centers are cheaper for community residents because people can use their own time rather than paying for the processing service.

A very important characteristic of self-service centers is that their place under FDA regulations is fairly clear. The Food and Drug Administration has ruled that community canning centers operating on a self-service basis are not subject to FDA requirements.\* The general guidelines are that unless a community cannery offers products for sale in interstate commerce, the facility is more properly regulated by appropriate state and local regulatory agencies. The effects of having to meet FDA requirements can be major, involving increased costs for

\*Memo from Heinz G. Wilms, Director, State Service Branch, FDA, to state food officials, June 2, 1976. (HFO-310)

labor, capital, and maintenance. This is discussed more fully in Appendix 2.

A self-service center requires community participation. Its hours must be set to accommodate its members, and evening and weekend processing is commonplace. The participatory aspect, which brings people together, either to work at similar chores or to discuss logistics, increases community interaction.

#### Staff-Canned

Staff-run centers require between four and six employees. With a trained staff in charge of operations, a larger quantity can be processed. The staff-canning facility requires refrigerated storage space since maximum use of labor depends on a steady supply of all the necessary inputs and a place to hold the finished product. Unless the produce is on hand for canning, production is slowed down considerably.

Staff-operated canneries fall into a gray area with respect to FDA regulation. Since the community residents pay not just for use of the facilities, but for the entire processing, the operation could be considered commercial. FDA regulations apply to businesses involved in interstate commerce. Some staff-run centers are located in towns near state borders. Should these centers provide canning services to out-of-state users, it is still unresolved whether they would be considered to be involved in interstate commerce or not.

Centers that have staff-canning components are more suitable to areas of high employment where it would be difficult for community residents to find the time to use a self-service center.

### Variable 3: Production for Commercial or Noncommercial Use

#### Commercial Use

Community canning centers that have attempted commercial sales have had varying degrees of success. A commercial component requires supply

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characteristics which guarantee a constant availability of supply. Some centers have operated through contracts with community growers, while others are attempting to combine a community run farm with a canning operation to maximize on labor utilization through vertical integration. Just as supply must be constant, a commercial operation must have nearby markets where the produce will be purchased.

Among the qualities necessary to assure sales are:

1. High value produce - a major selling point in New England has been the organic quality of community canned produce;
2. Ethnic specialty items - a center in Kansas found a certain recipe for canned peppers was very popular among local residents of German descent;
3. Institutional markets - some centers are experimenting with contracts with public institutions and agencies to supply their food needs with local produce. This could include government meal programs, as well as schools and hospitals.

Commercial operations engaged in interstate commerce are subject to full FDA regulations. These can require specially trained personnel, as well as investment in thermometers and other temperature-recording devices. Restrictions are less if production is limited to high-acid foods such as tomatoes and apples.\*

Commercial operations require a larger capital investment than do noncommercial centers. In order to sell commercially, some sort of inventory must be created to assure the product buyers a consistent supply.

#### Noncommercial Use

Noncommercial canning centers make up the bulk of small community canning operations. A noncommercial center depends on community support and participation. The center should be designed with adequate parking and good accessibility to community residents. Most community canning centers operate on an appointment basis, but in off-periods walk-ins

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\*See Appendix 2: General Technical Considerations: Health and Insurance Regulations

are generally accepted. During the first year good publicity and adequate funding are important. Noncommercial centers all process community produce. In gardening and farming the amount of production varies with weather conditions as well as bacteriological and insect plagues. For instance, in the 1976 summer season, bean blight and a dry spell seriously reduced garden production in southern Virginia and Georgia. Canning centers which in the prior year had been processing 400 quarts a day were processing only 100 quarts.

CCCs also compete with other forms of food preservation. Freezing and home canning are often-used alternatives to the community canning center. Tin can noncommercial community canning centers must compete against retail prices of commercially canned food. These factors limit the amount that a CCC can charge for its service. Demand for the community canning center is relatively price elastic. The Botetourt Community Cannery in Virginia which reopened with a relatively high service charge in an effort to cover costs found that the volume dried up dramatically.

Noncommercial operations have been built in a number of rural and suburban locations. They are suitable wherever the population engages in gardening or a cheap supply of fresh produce is readily available. These canning centers are best suited to areas where individual gardening is popular and energy costs are high. This both assures demand and increases the competitive advantage with other forms of more energy-intensive food preservation. The sponsoring group should be a social service agency or a large profitmaking concern which can absorb canning center losses. The users of community canning centers tend to be low and middle income families, making canning center projects prime candidates for social action funding.

CHART OF CANNING CENTER VARIABLES

A. PROCESS VARIABLES

	Characteristics		Suitability	
	Tin Cans	Glass Jars	Tin Cans	Glass Jars
1. Tin Can/ Glass Jar	a. capacity: 800-3,000 quarts per day b. initial cost of investment: \$18,000-\$210,000 c. container cost lower: 12-14¢ each d. min. space: 2,500 sq. ft.* *Dixie complete portable requires only 750 sq. ft.	a. capacity: 200-500 quarts per day b. cost of investment: \$8,000 per unit, including installation c. container cost higher: approx. 20¢; reusable d. min. space 350 sq. ft.* *829 sq. ft. is recommended	areas with: large agricultural production; low value produce (eg. sauerkraut, peaches); less concern for organic and specialty items; potential institutional users	areas with numerous gardens; high-value food items; low-capital needs; concern for organic products and specialty markets; institutional users
	Self-service	Staff-canned	Self-service	Staff-canned
2. Self-service/ Staff-canned	a. employees: 1-3 b. less production capacity c. cheaper to patrons d. FDA regulation inapplicable	a. employees: min. 3 b. larger quantity processed c. working class has increased access d. FDA regulation unclear e. need for inventory space	a. social service agency or larger profit-making concern that can subsidize operation b. areas where individual gardening popular, energy costs high	a. rural manufacturing areas b. high-employment rural areas

B. PRODUCT VARIABLES

	Characteristics		Suitability	
	Commercial	Noncommercial	Commercial	Noncommercial
3. Commercial/ Noncommercial	a. need guaranteed produce supply b. markets available for specialty items/local distribution c. glass jar operations because of market d. FDA commercial restrictions e. need for inventory storage space	a. heavy subsidies required; indefinite product supply b. home freezer competition c. requires parking/publicity d. FDA requirements not applicable	a. low-volume specialty product areas b. farm area with direct market stands c. guaranteed institutional market	a. areas where members of household not working b. densely populated regions c. provides social center

## THE EIGHT DIFFERENT MODEL POSSIBILITIES

Although we have talked of three variables and can graphically show eight possible models based on those variables, only five of these can actually be considered for community canning centers.

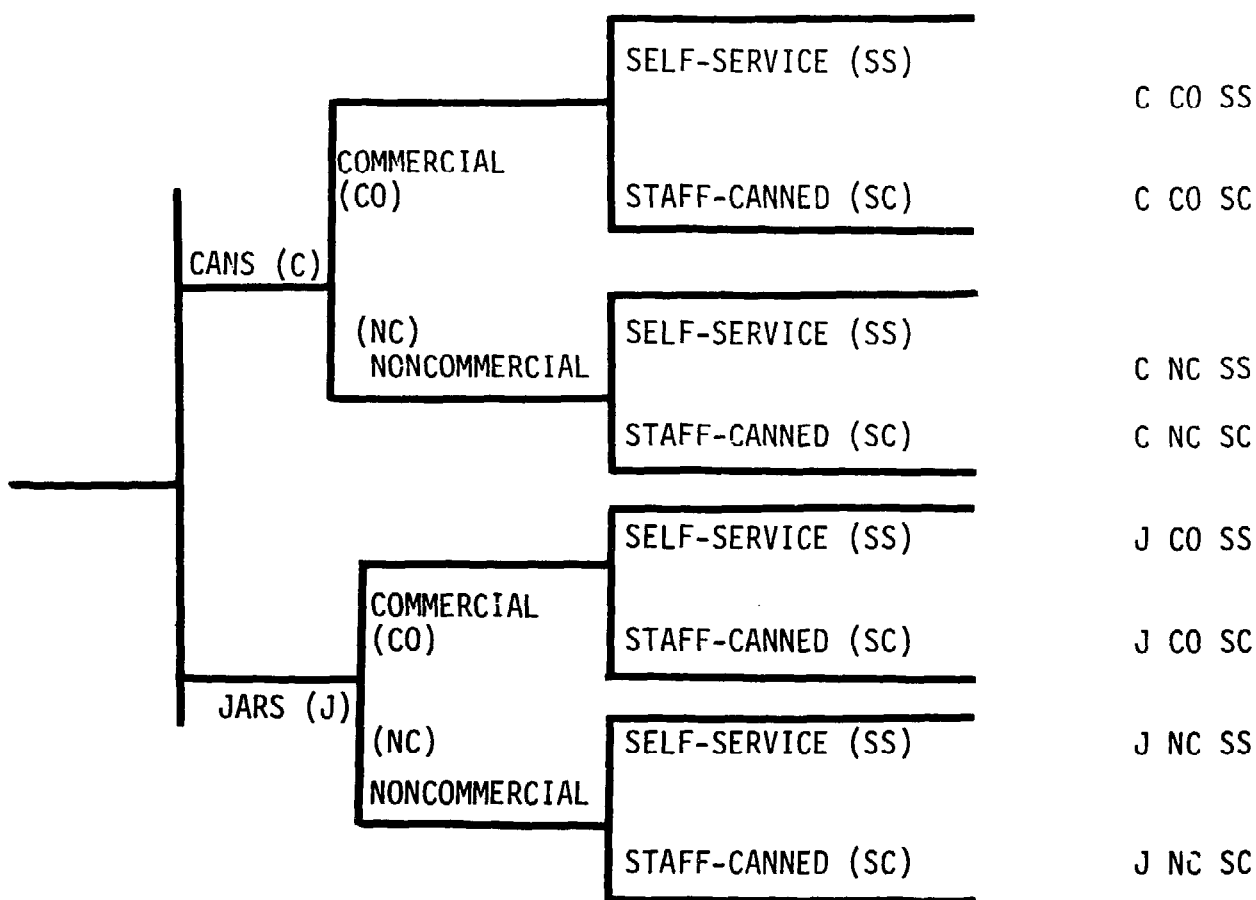


FIGURE 1: How the Eight Basic Models Were Derived



C CO SS (Cans, Commercial, Self-Service)

C CO SC (Cans, Commercial, Staff-Canned)

Neither of the first two combinations was encountered. The commercial market for community canned produce is a specialty market. In general production, a small community canning center can never compete with the economies of scale and market control of the large commercial canneries.

Community canning centers, to cover expenses, would have to charge a higher price than do large processing operations.\* This has limited CCCs to marketing only those specialty items that can be differentiated from large-scale commercially canned produce. The need for product differentiation and the psychology of specialty markets make the use of tin cans difficult. Thus far community canning for commercial sale has only been done with glass jars. Interest in cans, as mentioned earlier, has been restricted to possible marketing to public institutions.

C NC SS (Cans, Noncommercial, Self-Service)

Two community canning centers visited incorporated this model. They were the Botetourt Community Cannery of Buchanan, Virginia, and the Abingdon Community Cannery of Abingdon, Virginia.

Community canning centers using tin cans in a noncommercial self-service operation are prevalent in the southern states. Most also process some produce in glass containers. Traditionally these centers were sponsored by school boards and state governments, but today subsidies also come from community action agencies, counties, and one community development corporation. They tend to be high volume, with the centers observed processing between 8,000 to 212,000 quarts per year. The Botetourt Cannery, a relatively new CCC, reported that the average user canned 80 quarts. In 1975 in these southern centers crops processed included peaches, cabbage, apples, beans (both dried and green), and meats. The costs to the user in the C NC SS centers were fairly standard. Including the price of the can, processing and canning of one quart ran between 21 and 23 cents. The high-volume, low-cost, tin-can CCC has been quite successful in integrating

\*See Appendix I: Calculating Consumer Surplus and Projected Costs

itself with the community. The Abingdon, Virginia CCC is a fairly good example of this. During the last few years its volume has been the highest of the school-affiliated canning centers, reaching 212,000 quarts in 1975. The center opens at 6 a.m. and closes its doors at 1 p.m. People who are already inside can keep processing. On peak days, the center stays active until 11 p.m. Its large 1975 volume included users from the community, from two area prisons that process produce from their gardens, and from the Tri-State Children's Home. The Abingdon operation, along with a number of other C NC SS centers, is open on a year-round basis. During the winter months the center is kept open one or two days a week with curtailed hours. Meats and dried beans make up the bulk of the processing. Although it is run on an appointment basis, walk-ins are accepted during slow periods. The center has facilities for jars and cans. Its operation includes four large retorts, a conveyor belt type exhauster, and a variety of supplementary equipment. Prices from the 1976 season were:

- 45¢ gallon (processing and can cost)
- 21¢ quart (processing and cost of #2-1/2 can)
- 14¢ (processing and cost of #2 can)
- 8¢ quart (glass jar processing only)
- 5¢ pint (glass jar processing only)

The center is staffed by two full-time employees. It is subsidized by the county, which takes care of purchasing and fiscal record-keeping. Even with the 212,000 quart 1975 volume, it fell short of breaking even.

The most well organized and established community canneries in the country are those in the state of Georgia. Georgia has 97 community canneries all of which operate on a self-service basis using Dixie equipment. These canneries operate at varying levels of self-sufficiency. The state of Georgia is divided into four agricultural districts. Each district has between 9 and 27 canneries. The state pays the salary of a coordinator for each cannery as well as a helper. Service fees go to cover operational costs. These canning centers process volumes ranging from 12,000 to 100,000 quarts a year. Canneries that do less than 50,000 (the size of one full trailer

load of tin cans) will often coordinate can purchasing with other communities to reach the 50,000-can level and receive large order discounts. Larger cooperative purchasing was tried but dropped due to difficulties in scheduling.

A self-service operation that can do tin can processing requires a major investment to cover initial capital and operating costs. A C NC SS center needs the large volume that comes from active community use, since the center capacity is large. Most of these centers operate with two or three staff members.

#### C NC SC (Cans, Noncommercial, Staff-Canned)

Only one operation of this type was visited, the CCC run by the Claiborne County, Mt. Valley Economic Opportunity Agency in Tazewell, Tennessee. The Mt. Valley EOA bought a Dixie complete packaged/portable cannery in 1972. The county covers labor costs and the cannery is built into a trailer so that rent is not an expense. The willingness of the county to cover labor costs stems from the general feeling that this project provides benefit to working people. Tazewell is a rural area with high employment in low wage, non-union mills and factories. In many families both husbands and wives work. The staff-run center allows workers to drop off their produce on the way to work in the morning and pick it up on their way home at night. People working full time find hours to garden on weekends but have little excess time for canning. This center allows them to gain the savings of home canning without giving up all leisure time. In winter months dried beans are again a major item. The workers can bring them in, can them, and have them available to prepare quick dinners after their long working hours.

The Tazewell center cost close to \$31,000. Of this, \$21,000 went for equipment and \$10,000 covered installation and supplies. Because it is a staff-run center, the Tazewell operation invested in a cooler, for storage. Patrons leave their produce in the cooler while it awats pro-

cessing. It was built under an OEO grant, which was sufficient to cover the first two years' operating expenses, allowing the cannery to prove itself before having to solicit refunding. The problems related to initial exposure to area residents as well as to equipment and weather variables are shown clearly by examining their statistical report. (See Exhibit 2.)

#### J CO SS (Jars, Commercial, Self-Service)

The combination J CO SS occurs in upper New England at the Gardens For All Community Canning Center in Shelburne, Vermont. Small farmers utilized a noncommercial, self-service canning center to process products for sale at their roadside stands, taking advantage of the center to can specialty items. Through direct marketing at their stands, they were able to charge a price that was sufficient to cover costs and still leave a fair profit. In Lebanon, New Hampshire, a farmers' cooperative has discussed supplementing a direct market operation with a small canning center, but as yet this type of canning center as an independent operation does not exist.

#### J CO SC (Jars, Commercial, Staff-Canned)

The insecure state of funding has generated a great deal of interest in J CO SC operations, which appear to offer the highest potential for economic independence. One such operation was attempted by the Plainfield, Vermont, food coop in a spin-off operation called "Pumpkin Sour." It involved a staff of between 3 and 5 paid workers, plus some volunteers. The only products were apple sauce and apple butter. Staff bought seconds -- apples of lower quality -- which were processed at a Ball jar one-unit center. The canned produce was sold for approximately 85¢ a quart wholesale, and resold retail for as much as \$1.50 per quart. Pumpkin Sour operated as a collective. The operation was bought out after the 1975 season by the Cherry Hill Cooperative Cannery.

Another example of this type of operation was started in August 1976. The Bread and Law Task Force in Montpelier, Vermont, received a \$75,000 grant from the Campaign for Human Development to establish three canning centers in three different areas of the state. These are the Cherry Hill

COMMUNITY CANNERY - CLAIBORNE COUNTY, TN

Statistical Report

Beginning 1972 (first year cannery was  
in operation)

1972	No. families used cannery	175
	No. cans used	21,556
1973-4		
May 1 - April 30, 1974	No. families used cannery	350
	No. cans used	63,673
1974-5		
May 1 - April 30, 1975	No. families used cannery	327
	No. cans used	49,229*
1975-6		
May 1, 1975 - April 30, 1976	No. families used cannery	436
	No. cans used	38,961**

FOOTNOTES

\*1974-5 - 3 months cannery out of use due to boiler breakdown. One employee laid off; salary used in payment of new boiler

\*\*1975-6 - Due to dry weather very poor gardens; cannery not in use as much as in some previous years.

Cooperative Cannery in Barre, the Northeast Kingdom Cooperative Cannery in Barton, and the Rutland Canning Cooperative. Additional subsidization support included CETA funds and a \$13,000 grant from the New England Regional Commission. Each center has a staff of five. During the canning season, specific amounts of time are set aside for self-service community use and for the staff-run commercial operation, which sells to food co-ops, private buyers and food distribution companies such as Erewhon. Their output includes mainly apple products, with some beans, beets, and tomato processing. These canneries try to process organic, or "natural," produce, which has a high value in regional markets.

A Massachusetts collective ran a one-season canning operation called Crashing Tower Pickles. They produced an organically processed pickle which was sold through private food distributors in the New England and Mid-Atlantic states. And Self Reliance, Inc., a community cannery in Northampton, Mass., is considering a contract to reprocess government foods for the area's elderly. They also might be producing for local and state schools and hospitals.

The major problem facing J CO SC operations is control over supply. Pumpkin Sour depended on contracts and paying a high price for apples they bought. They also went out and offered owners of abandoned orchards a payment to pick what apples still grew. When the apple crop was bad, availability of apples for canning dropped. In an attempt to maximize the utilization of labor, Pumpkin Sour bought bulk maple syrup and sold it in smaller containers. Other J CO SC operations have tried to control supply and make up for the seasonality of canning through vertical integration. Some Vermont canneries and the Crashing Tower collective of Massachusetts have tried growing their own produce. In Vermont the staff of the three community canning centers grow their own tomatoes and beans and, after harvest, they operate the canning center. None of the centers is able to cover expenses.

The extent of the demand for specialty products is as yet unknown. No center has faced a ceiling on demand. Major New England purchasers of these specialty canned foods include Erewhon and Llama foods. Many

CCCs have been told that all production will be bought.

Selling to food co-ops, a seemingly natural market, has been difficult. A community canning center producing for commercial sale produces a large quantity during harvest time. It is to the canning center's advantage to sell its product as it produces, eliminating storage and cash flow problems. Food co-ops operate on limited budgets and do not have sufficient storage space. As a result they are forced to purchase commercially canned foods which are available throughout the year. In the New England region the New England Food Cooperative Organization has begun a major bulk-buying effort and each subregion will have some storage and trucking capability. It is possible that through this larger scale marketing system, the food co-op network will become a useful market for area CCCs.

The financial investment in a J CO SC center varies. The Crashing Tower pickle operation utilized virtually no equipment. Pumpkin Sour invested roughly \$7,000 in purchase and installation of one Ball jar compact canning unit. The three new Vermont community canning centers are valued at \$20,000 to \$25,000 each and are set up to do both commercial and non-commercial canning. Pumpkin Sour, the only strictly commercial operation, began with a series of loans and \$1,000 in initial grants. Labor for the first year was donated. The 1975 season revenues covered expenses, loan interest, and some depreciation and, with a major contribution of volunteer labor, the operation reached a break-even point before it sold out in early 1976.

#### J NC SS (Jars, Noncommercial, Self-Service)

Among New England self-service centers are the Keene, New Hampshire community cannery with state and federal sponsorship; the Shelbourne, Vermont, Garden Way Canning Center with private foundation support; and the Woman in Agriculture-sponsored "Self-Reliance, Inc.," Hampshire Community Canning Center of Northampton, Massachusetts, which received federal, state, and private support to begin its operation; as well as the Vermont Cooperative Canneries, which sell commercially and also work on a self-service basis. These centers usually charge a basic

processing fee. Use of kettles, juicer/pulpers, and other extra equipment involves additional charges. Very often food stamps are acceptable payment to cover costs. The Vermont Cooperative Canneries have arranged for the area Community Services Administration to pick up processing fees for low-income groups. These smaller Ball one-unit centers tend to be more seasonal in operation. This is especially true in New England because of the hard winters and short growing season. Most J NC SS centers employ two or three staff people.

#### J NC SC (Jars, Noncommercial, Staff-Canned)

No CCCs in the study used the J NC SC format. Glass jar operations have a lower volume and are more labor-intensive than tin can processing centers. Staff canning would be too expensive for such an operation, and the amount of subsidy needed to maintain such a center would be prohibitively high.

#### Model Combinations

In combining the above models community canning centers have utilized an innovative concept in business and community enterprise development. Many centers offer the community a variety of processes to achieve the same product, thus allowing for consumer preference in process as well as in final product. A number of southern community canneries have facilities to allow for user choice between cans or jars, thereby permitting community members to make "process" decisions about their container. This ability to combine a variety of processes is extremely useful in remaining responsive to community needs.

In New England, the Vermont Cooperative Canneries and the Hampshire Community Canning Center of Massachusetts will run self-service noncommercial and staff-canned commercial operations at different times during the day. The Cherry Hill Cooperative Cannery does this by operating from 4 a.m. to 10 p.m. and running a split shift. This combination allows the center to meet varying demands of community purchasers. It is hoped that the commercial component will help to subsidize the lower-income-generating, self-service operation. The flexible structure also is useful in keeping



more money in the community. Those who want to purchase local products are able to, while other community members can gain a financial savings by doing their own canning. Most of the centers discussed earlier run with a combination of models.



# N · E · W · S · L · E · T · T · E · R

**VOL. 1 NO. 1**

**FREE**

**FREE**

**JULY 7, 1976**

**Q** *Botetourt Community Cannery? What's that?*

**A** A non-profit community service. Basically, we're a canning company whose facilities are open to the public. Our purpose is to help you get your garden out of the ground and onto the shelf.

**Q** *That's very clever.*

**A** Thank you.

**Q** *Do you mean that I can come in and do my own canning?*

**Q** *That's perfect!*

**A** You bet.

**Q** *I only have a small garden. What does the cannery do for me?*

**A** We're tailor-made for folks like you. You don't do enough canning to go to the trouble and expense of getting set up at home, but you'd still like to save some of those great Octobers you raised, not to mention those juicy tomatoes. Just bring'em to the Cannery!

**Q** *This all sounds very nice, but I just can't leave the children alone at home while I'm off at the cannery.*

**A** In all modesty, we've thought of everything. There's a playground at the Cannery for the kids, where they can play with each other and stay nicely out of the way.

**Q** *I'm concerned about cleanliness.*

**A** So are we. So is the Food and Drug Administration. The Cannery Supervisor

**A** Exactly. We've got everything you need. Cans, jars, cookers, sealers, juice-makers, pulping machines, meatgrinders, kettles, everything.

**Q** *That sounds great! All the advantages of home canning with none of the mess or expense!*

**A** That's the idea.

**Q** *What about those of us who don't know how to can?*

**A** We'll teach you. You can learn as you do it, and also at our free demonstrations. We'll stay with you all the way from cucumber to pickle.

**Q** *I have a few apples out back, and every year I get more apples than I know what to do with.*

**A** Then the Community Cannery is the perfect answer.

**Q** *But who wants 100 quarts of canned apples?*

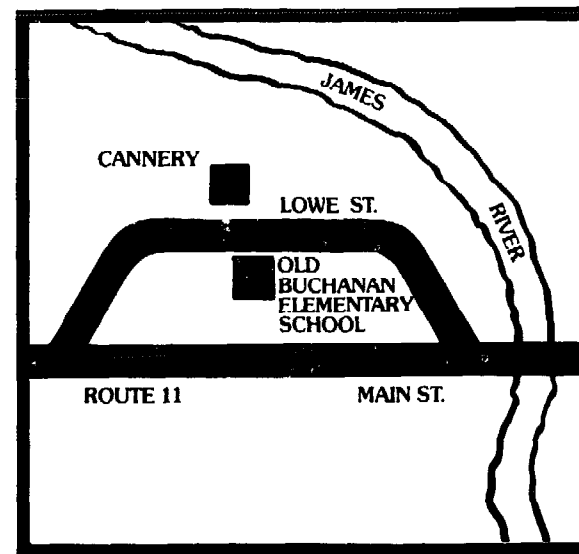
**A** Nobody. But this is another reason the Cannery is so great. You can take those apples and make applesauce, apple butter, apple jelly, and canned apples. All at the same time.

**Q** *On the other hand, if I've got a lot of canning to do...*

**A** Then we can make it a lot easier and save you a lot of time. You can do a lot more at once here than you can at home.

**Q** *This sounds like one of those new-fangled ideas to me.*

**A** Not at all. The Cannery was first started back in the forties to help folks who were growing Victory gardens. It's a good old idea that's even better now, with the new and updated equipment that we have at the cannery.



A Community Development Project of the Botetourt Improvement Association, Inc.

is FDA Certified, so you'll know our facilities are clean and safe, and we intend to stay that way.

**Q** *How much does it cost?*

**A** Depends on what you're doing, so the cost varies. But remember, we're a non-profit organization.

**Q** *The thing I like about canning is when Gladys comes over to help, and we have such a good time talking and exchanging recipes and ideas. It makes the time go so much faster.*

**A** Then the Cannery should suit you to a "T". There are always other folks there, doing just what you and Gladys do. You'll see your neighbors, renew old acquaintances and make new friends. The Cannery is a real community affair.

**Q** *Frankly, I can't wait to start canning! When does the cannery open?*

**A** We open July 7th, and we'll be open every Tuesday and Friday until the end of October. And don't forget to watch for those free demonstrations.

**Q** *If I need to know more...*

Call the Cannery at 254-2408, or call 344-6624 in Roanoke, or 473-2264 in Fincastle.

## THE COSTS AND BENEFITS OF COMMUNITY CANNING

Community canning centers require a fairly low investment for the quantity of benefits they provide. These include a higher degree of community interaction, a stronger sense of self-reliance, higher quality food, training for the community labor force, the monetary savings to community users, and a more stable market for local growers. The community canning center is much more a part of the community infrastructure than it is an independent business venture. As in other "infrastructure" investments, such as roads or a city bicycle licensing division, a CCC project benefits those who use it, but does not receive enough in fees to cover costs. Both the fluctuations in produce supply and the seasonality of the canning industry make a self-financing operation difficult. Nor can the return from sales of canning supplies and the processing services rendered make up the difference. Let us look more closely now at the benefits received by the community.

### Community Interaction

A community canning center affects community interaction in a number of ways. Self-service centers provide a meeting place where individuals who normally would preserve food in their homes or buy it in the store come and work alongside each other.

The CCCs provide good public exposure for the sponsoring group. Each user of the center means one family in the community directly benefits from the canning center project. School-connected CCCs in Virginia averaged 437 users each in the 1971-72 season. If a mean family size of 4.3 is assumed, close to 1,900 individuals directly benefited from each of these centers. Indirectly, area farmers who sell fresh produce and those non-immediate family members who share in the processed food also receive a benefit from a community canning center. That most centers are well known in their communities attests to their high visibility and community impact.

### Community Self-Reliance

Existence of a CCC provides community residents with more control over the economic conditions under which they live. As transportation and labor costs go up, affecting national food prices, independence in food production is increasingly important for area residents. The canning centers allow families to maximize the use of free time in producing food. Most users process food for friends and relatives as well as for themselves. The canned food serves to strengthen community ties and fits into a reciprocity system whereby informal service networks are supported. A gift of canned food from one family might be returned with child care services or other aid from the receiving family in times of need.

### Higher Quality Food

Participatory canning helps to provide better food. Clients can process freshly harvested food from their own garden or purchase from local producers. Personal recipes may be used and sweeteners eliminated if desired. With the increasing awareness of the dangers of chemical insecticides to human beings, community canning offers families more control over this part of their diet as well.

### Training in New Skills

People who work at CCCs learn a variety of skills, among which are processing, food preservation, accounting, management, customer relations, and dealing with regulatory agencies. The community cannery can be a door toward other employment opportunities.

### Monetary Savings

Some money is saved by people who can their own produce rather than paying commercial prices. The Botetourt Community Cannery found that the average user canned 80 quarts of produce. Assuming an average retail value of 50¢ per quart, each user saves \$40, less the costs of processing and the inputs used in growing the garden. Assuming a canning center charges 23¢ a quart to process one can of produce and the cost of raising that one quart of produce was 8¢ (See Appendix 1), the user saves 19¢ per can, or a total of \$15.20. (See Table of Monetary Benefits). This means a total savings to a community as high as \$40,280 (in the Abingdon center which

had a 212,000-quart volume) to as low as \$1,520 (for the Botetourt Community Cannery in 1975).

### Stability for Community Growers

Small farmers within a community benefit directly from CCCs. Always faced with uncertainty as to how much they will be able to produce, it is difficult for them to develop stable markets for their output. A community canning center increases the demand for fresh and locally grown produce. This added demand, by helping to stabilize the market, can play an important role in keeping small farms economically viable.

All these benefits end up costing the communities with canning centers very little. This is due in part to the large amount of private, state, and federal discretionary funding which has been made available for community canning centers. On balance, however, even after these discretionary grants have been counted, the average community cannery still has not been able to cover costs. The Table of Projected Monetary Costs illustrates this situation. These costs include initial investment in equipment, cans, and jars, as well as ongoing expenses in equipment maintenance, purchase of supplies, rent, utilities, phone, insurance, and labor. The processing and merchandise sales fees generally fall short of these expenses. The Botetourt Community Cannery made up some of these revenues by introducing a \$2.00 annual membership fee for access to the canning facility. Cooperatives also charge membership fees. In Appendix 1, the calculated costs for each model are discussed using projected figures from existing canning centers.

### Summary

In reviewing the costs and benefits of community canning we find ourselves asking why it is that towns, counties, states, and various funding agencies continue to build and support community canneries in increasing numbers despite the need for subsidization. Why do communities offer them not only ongoing support, but a choice between different types of canneries to meet differing needs?

Those whose support sustains CCCs understand that in community economics, profits involve more than a direct dollar inflow. The benefits of community interaction, increased self-reliance, better quality food, and skill-building,

plus monetary savings for families and added stability for area growers, are vital enough social reasons to far outweigh the costs of the initial investment and the ongoing subsidization.

TABLE OF PROJECTED MONETARY SAVINGS

Estimated annual consumer surplus, or monetary savings, for the three noncommercial canning center models. Since the quantity processed was not held constant, this is not offered for comparability, but rather to convey a rough idea. See Appendix 1 for explanation of calculations about savings.

<u>MODEL</u>	<u>ASSUMPTIONS, BASED ON QUARTS</u>	<u>TOTAL COMMUNITY USER SAVINGS</u>
C NC SS	Volume, 40,000.* Processing fee, 23¢. Cost of purchased inputs to cultivate produce, 8¢. Retail value of canned produce assumption, 50¢	\$ 7,600
C NC SC	Volume, 45,000. Processing fee, 24¢. Cost of purchased inputs to cultivate produce, 8¢. Retail value of canned produce, 50¢	\$ 8,100
J NC SS	Volume, 15,000. Processing fee, 15¢. Jar investment, 5¢. Cost of purchased inputs to cultivate produce 8¢. Retail value, processed produce, 85¢	\$ 8,550

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\*This volume assumption is that of an average cannery; if an analysis was done of the Abingdon Community Cannery or a number of the larger southern centers, community user savings would be up to five times as large.

TABLE OF PROJECTED MONETARY COSTS

The estimated annual cost for operating the three noncommercial canning center models as well as one commercial operation. See Appendix 1 for explanation of calculations.

<u>MODEL</u>	<u>ASSUMPTIONS</u>	<u>TOTAL MONETARY COSTS</u>	
C NC SS (Volume 40,000 quarts; initial investment \$55,300)	Depreciation	\$ 3,687	
	Maintenance and Replacement	800	
	Rent	2,400	
	Utilities	1,798	
	Can Purchases	6,000	
	Labor	10,045	
	Insurance	500	
	Total Annual Cost	<u>25,230</u>	
	Less Processing Fees	<u>9,000</u>	
	Net Annual Cost		\$16,230
	Estimated Discretionary Subsidies	<u>12,733</u>	
	Net Annual Cost, Less Discretionary Subsidies		\$ 3,497
	C NC SC (Volume 45,000 quarts; initial investment \$60,000)	Depreciation	4,000
Maintenance and Replacement		465	
Rent		600	
Utilities		1,770	
Can Purchases		6,750	
Labor		14,845	
Insurance		500	
Total Annual Cost		<u>28,930</u>	
Less Processing Fees		<u>11,250</u>	
Net Annual Cost			\$17,680
Estimated Discretionary Subsidies		<u>13,666</u>	
Net Annual Cost, Less Discretionary Subsidies			\$ 4,014



<u>MODEL</u>	<u>ASSUMPTIONS</u>		<u>TOTAL MONETARY COSTS</u>
J NC SS (Volume 15,000 quarts; initial investment \$16,200)	Depreciation	\$ 1,080	
	Maintenance and Replacement	219	
	Rents	2,400	
	Utilities	1,250	
	Jar Purchases	3,000	
	Labor	7,406	
	Insurance	400	
	Total Annual Cost	<u>15,755</u>	
	Less Sales of Jars	3,000	
	Less Processing Fees	<u>2,250</u>	
	Net Annual Cost		\$10,505
	Estimated Discretionary Subsidies	<u>6,173</u>	
	Net Annual Cost Less Discretionary Subsidies		\$ 4,332
J CO SC (Volume, 21,000 quarts; initial investment \$14,600)	Depreciation	\$ 1,080	
	Maintenance and Replacement	219	
	Rent	2,400	
	Utilities	1,750	
	Jars	3,780	
	Labor	16,000	
	Product Purchase	3,500	
	Insurance	600	
	Total Annual Cost	<u>29,329</u>	
	Less Sales of Production	<u>17,850</u>	
	Net Annual Cost		\$11,479
	Estimated Discretionary Subsidies	<u>7,973</u>	
	Net Annual Cost, Less Discretionary Subsidies		\$ 3,506

## APPENDIX 1: CALCULATING PROJECTED MONETARY SAVINGS AND COSTS

### Consumer Surplus, or Monetary Savings, Calculations

The consumer surplus calculation would have to be based on the following formula:

(canning center volume) x (retail value, less processing fees, and container and cultivation costs)

### Estimating Volume

C NC SS-40,000 quarts. Tin can container operations volumes ranged from the Botetourt CCC's 8,000 quarts to the Abingdon, Virginia, CCC's 1975 output of 212,000 quarts. The Virginia school community canneries reported a 20,000-25,000 quart annual volume in 1973 and 1974. The tin can center volume estimate has a wide range of variability.

C NC SC-45,000 quarts. This was estimated from the average annual output of the Tazewell Tennessee CCC, which used Dixie equipment. (See Exhibit 2)

J NC SC-15,000 quarts. This estimate is for a relatively high output. We are assuming a two-unit center with 100 operating days at 150 units average production per day. The estimate was based on projections from the Rutland, Barton, Barre, and Shelburne canneries in Vermont. The first three expect volumes of between 2,000-28,000 using a combination of the J NC SS and J CO SC models. The Shelburne operation processed 7,212 quarts in 60 days during its first year of operation.

For the J NC SS two-unit model, output will vary, getting as high as 15,000-18,000 and as low as 5,000-7,000.

### Estimating Processing Fees and Container Costs

All canning centers charged similar processing fees. For the one-quart (#2 1/2) can the processing fee was generally 23¢ at C NC SS centers. In the C NC SC operation in Tazewell, it was 24¢.

J NC SS operations varied somewhat in processing prices. Processing a one-quart jar ran between 10-15¢, with 15¢ more common. This processing fee did not include the price of the jar. One-quart, reusable jars can cost

from 18-23¢. The 15¢ or less cost per jar assumed a life expectancy per jar of 4-5 seasons. This annual loss estimate of 20 percent is conservative. A center might break 1 or 2 percent of the jars processes; assuming another 5 percent home breakage per year, this leaves us with a true annual loss of 6-7 percent.

#### Estimating Costs of Purchased Inputs

It was assumed that most of the produce canned in community canning centers is home-grown. The costs to the growers are the money spent to buy fertilizer, insecticide, and seeds, and possibly rototilling; depreciation of gardening equipment was also included. These items come to approximately 40-50 percent of the crop value. The remainder is value added through the grower's labor. For the C NC SS and C NC SC operations located in the South, 8¢ is based on approximately 18 quarts per bushel, with an estimated monetary cost per bushel to family gardeners of \$1.44. The same estimate is used for the J NC SS centers in New England. While the value of produce and costs of inputs are cheaper in southern regions, this is compensated for in New England by the emphasis on organic agriculture which relies on fewer purchased inputs.

#### Estimating Retail Price

The average retail price to consumers of one quart of processed produce packaged in a can is estimated at 50¢. This estimate was based on retail prices of a variety of commercially canned foods. This price estimate is relatively conservative because prices have risen since the estimates were made in early summer of 1976 and the actual quantity of produce by weight in a container processed at a CCC for home use runs about 20 percent higher than the quantity of produce in a commercially processed can.\*

For jars 85¢ a quart was used. This was the average wholesale price received for Pumpkin Sour's organic applesauce and apple butter. This is a very conservative estimate. The average price per quart charged by the Vermont cooperative canneries for their retail sales is \$1.06.

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\*Experiments conducted at CCED in Cambridge, Massachusetts, and at the Abingdon community cannery in Abingdon, Virginia.

## Project Costs Calculations

The cost assumptions for the three noncommercial canning centers (C NC SS, C NC SC, and J NC SS) and the one J CO SC model are based on information collected during site visits to a number of canneries throughout the United States. Regions, as well as communities, will have different costs. This appendix is a rough guide. Communities should be able to alter the numbers to fit their particular situation.

### Initial Investment Estimates

Start-up costs for community canning centers will vary depending on location and availability of high-quality, used equipment.

For the C NC SS model we assume that equipment is bought by piece from a variety of suppliers. Projected equipment includes:

4 retorts	\$ 4,800
4 steam-jacketed kettles	1,800*
1 electric exhaust tunnel	1,200
1 20-h.p. boiler	8,000
1 steam table	800
1 juicer/pulper	1,000
1 complete canning unit (Ball)	4,300
3 sealers	400
Assorted tables, pots, utensils, sinks, etc.	20,000
Installation	<u>13,000</u>
Total	\$55,300

The C NC SC canning center investment estimate is based on the Dixie Portable/Packaged Cannery figures. Including installation, these centers should cost close to \$60,000. This same unit cost the Tazewell canning center \$31,000 four years ago.

\*See equipment section on used kettles.

Both J NC SS and J CO SC models assume the following initial investment:

2 Ball jar units	\$ 8,600
1 10-h.p. boiler	3,000
Miscellaneous	600
Installation	<u>4,000</u>
Total	\$16,200

#### Depreciation on Investment

This is calculated using a 15-year, straight line method. This means investment depreciation runs 6.6 percent of initial value annually.

#### Equipment Maintenance and Replacement Costs

These are estimated at 1.5 percent of initial investment.

#### Rent

This figure is set at \$200 a month. It represents the average rental paid by Vermont canneries. The C NC SS operations in the South all had rent-free locations. We are assuming that if these centers paid rent costs they would be about that figure. The J CO SC and J NC SS operations occupy less space than the southern centers do, but land values in regions with tin can centers tend to be lower. The C NC SC model assumes the use of a Dixie packaged/portable canning center. This canning operation is built into an aluminum trailer and no building is required. No Dixie portable centers encountered paid rental costs, but assuming an estimated land value of \$3.00 a square foot and a lot size of 1,000 square feet, the \$600 figure would pay principal and 12 percent interest within six years.

#### Utilities

Estimates on utilities were taken from budgets of existing canning operations. These include electricity, gas, water, and telephone. For tin can centers, costs are estimated at 4¢ per quart, while Ball jar operations ran 8¢ per quart. These costs represent an average price. Since utilities are a mixture of fixed and variable costs the cost per unit will decrease with the volume of the center. At lower levels of production these cost estimates would be less accurate. Telephone costs, for example, do not vary with output.

### Jars/Cans

Fluctuations in the price of cans make these calculations only estimates. Ball jars were estimated at 20¢ for the one-quart size and tin cans at 15¢ for the #2 1/2 size.

### Labor

Cost estimates assumed community centers will employ combinations of three types of labor:

1. Full-time workers at \$3.50/hour, 2,000 hours/year \$7,000
2. One seasonal worker at \$3.00/hour in tin can centers and \$3.50/hour in Ball jar operations, 800 hours/canning season \$2,400  
2,800
3. Administrative support units, usually supplied by the sponsoring agency. This is calculated at \$6.00/hour in rural areas and \$7.00/hour near urban centers; 5 hours/week, 5 months/year. \$ 645  
752

The C NC SS center is estimated to need one full-time, one part-time, and one administrative support units. C NC SCs requires more labor; their work unit needs are estimated as one full-time, three part-time, and one administrative support.

The J NC SS and J CO SC centers visited were in New England. Estimates of labor requirements were:

- J NC SS: 2 seasonal (\$3.50/hr)
  - 1 administrative support (\$7.00/hr., 5 hrs/week, 12 months)
- J CO SC: 2 full time (\$7,000/yr)
  - 1 seasonal (\$3,00/hr., 667 hrs.)

The Northampton, Massachusetts, CCC, sponsored by Women in Agriculture, employed a staff of 17 during the 1976 season. Due to a large CETA grant they were able to provide numerous services, such as child care, transportation, and nutrition education, along with the canning operation.

### Produce Purchases

The J CO SC center must purchase produce for canning. The \$3,500 figure is based on an average in-season produce cost of \$3.00/bushel, according to

the Ball Corporation's Blue Book, which gives estimates on quarts/bushel. For this projection we have assumed 18 quarts/bushel as an average conversion ratio. The estimate of \$3.00/bushel is low. This is explained by the fact that most of the J CO SC centers have used lower quality or center-grown produce, reducing costs.

#### Insurance Costs

Insurance estimates are based on payments existing centers make. For more details see Appendix 2.

#### Processing Fees

Processing fees are estimated at (total volume) x (per-quart fee).

These per-quart fees are projected at:

- C NC SS 23¢ (including can)
- C NC SC 25¢ (including can)
- J NC SS 15¢
- J CO SS 85¢ (estimated wholesale price)

As in the other projected estimates, actual prices could vary widely depending on the product processed and regional price differentiation as well as on the degree of subsidization.

#### Estimated Discretionary Subsidies (EDS)

All centers visited received some level of subsidization. Often this consisted of federal or private grants to cover investment costs or CETA slots for cannery workers. A number of centers were provided rent-free space in county buildings, on county property, or in area schools. This concept of discretionary subsidies includes:

1. Any federal, state, or private funding the center is able to attract;
2. Any county support, such as provision of space;
3. Any donated equipment, labor, or supplies

Most of the federal support for CCCs has come from CSA funds, while the General Services Administration (GSA), has provided surplus equipment. State support has consisted of technical assistance from state Department of Agriculture nutritionists, training courses, and the provision of a

number of CETA positions. Private foundations have made grants that have ranged from \$1,000 to \$75,000 to initiate and staff community canning projects.

County support has included provision of space in area schools, fair-grounds, and even courthouses. In Tazewell, Tennessee, as mentioned earlier, the county annually pays \$14,000 in labor costs.

Donated equipment and services from community and surrounding area sources are another form of subsidy. The Botetourt Community Cannery received extensive services and equipment which greatly reduced its costs. Other canneries have received technical as well as physical help in installing new centers.

The estimated subsidy figures are based on the subsidies received by the centers visited. Figures, of course, always will vary with circumstances.

In the C NC SS model this subsidy is estimated as part of investment and rent, and the equivalent of one full-time staff person. The actual subsidies for C NC SS centers vary enormously.

The C NC SC center EDS includes initial investment, rent, and some labor costs. The only C NC SC center visited operated with the Dixie portable/package cannery. Dixie has sold four of these units to CSA agencies. They all have been paid for with CSA monies. Rent is usually not a factor, since the centers operate in mobile trailers. Federal CETA slots were used in the C NC SC operation visited.

The J NC SS EDS again involves rent, investment, and some labor costs, while the J CO SS cannery subsidy is calculated at one full-time worker, plus initial investment. Both these calculations were based on existing New England area CCC subsidization statistics.

All the above figures are meant to be rough guidelines. In each community and in each canning center, costs and subsidies received varied. Any community interested in starting a CCC will have to set this information in the framework of its own particular situation in order to determine the feasibility of its plans.



## APPENDIX 2. GENERAL TECHNICAL CONSIDERATIONS

### Equipment Sources

There are two main suppliers of small-scale canning equipment, Ball Corporation and the Dixie Canner Equipment Company. Both these companies market complete canning centers as well as individual pieces of equipment. Some community canning centers have purchased individual pieces of equipment from other smaller companies. Boilers and kettles are most often obtained this way. Defunct canneries and state institutions are other good sources of used equipment -- a number of prisons and hospitals have abandoned food processing operations. Community organizations eligible for government surplus should contact the General Services Administration for surplus equipment. The Botetourt cannery, for one, used this source successfully. Below are the names, addresses, and description of some equipment sources:

Ball Corporation  
345 High Street  
Muncie, Indiana 47302

Ball sells complete food preservation centers in one-, two-, and three-unit models. Each unit is listed as having a 200-500 quart capacity per day, calculated on an eight-hour basis. Equipment included in the nutrition center unit package includes:

- 1 steam-blancher sterilizer
- 1 atmospheric cooker
- 1 juicer/pulper
- 4 pressure cookers
- 1 steam-jacketed kettle (20 gallon)
- 4-jar lifter
- 1 hot water heater
- 1 spray-cooling tank
- 1 exhaust fan
- 4 table carts

12-jar blancher baskets

Oil, gas, or electric boilers (a 6-h.p. for the 1-unit model and a 10-h.p. for the two-unit model) are also supplied at an additional charge. A variety of optional equipment is available. February 1976 equipment prices were \$4,309 for the 1-unit nutrition center and \$2,664-\$3,600 for the boiler, depending on the model.

Ball Corporation will service its equipment and provide training in its operation to the purchaser. Ball equipment, reliability, and customer service are reported to be excellent.

Dixie Canner Equipment Company  
786 E. Broad Street  
P. O. Box 1348  
Athens, GA 30601

Dixie Canner specializes in equipment for commercial canneries, community canneries, pilot plants, and laboratories. They have sold equipment for tin can canneries since 1914. Recently they have begun marketing a packaged/portable cannery, which occupies a 750-square foot trailer.

Equipment includes:

- the trailer
- a hoist rack
- cooling tank
- ventilation & exhaust fans
- steam/water table
- a drain and space heater
- 30 retort basket separators
- 1 vertipack 20-h.p. boiler
- 2 40-gallon jacketed kettles
- 2 20-gallon kettles
- 1 pulper/juicer
- 3 retorts
- 1 hot water heater
- 2 electric can sealers
- 1 three-compartment sink
- 2 table trucks
- 3 all-purpose containers
- 1 electric hoist
- 1 scale

Miscellaneous pots and other assorted equipment.

Delivery takes three to four months. The company will service the equipment, although service on this equipment can usually be found locally.

Individual pieces of equipment are similar to larger commercial and industrial cooking equipment, increasing the availability of spare parts and maintenance expertise. Estimated cost for the complete Dixie unit is \$60,000.

Almost all tin can operations rely on some Dixie equipment. The Dixie portable cannery can process from 400-900 quarts per day with the wide variance depending on the produce and the degree of user participation. Dixie also sells standard equipment for canning centers. A price list and catalog can be obtained by writing to them.

Most companies that manufacture canning equipment tend to produce only equipment suitable for high-volume production. A comprehensive listing of food-processing equipment manufacturers is contained in: The Food Processor's Guide, available without charge from:

Food Processing Machinery & Supplies Ass'n.  
7758 Wisconsin Avenue  
Washington, D. C. 20014  
(301) 656-5724

Vermont Canneries found they saved money by buying used steam-jacketed kettles in New York at kitchen equipment outlets on the Bowery. At present, these 20-gallon kettles sell new for \$700 apiece; in New York the Vermont Canneries had paid \$900 for three.

Good quality used equipment can be purchased from defunct community canneries or small-scale commercial operations. Throughout New England and in the South a considerable amount of unutilized equipment exists. It is largely found by word-of-mouth. The community canning center in Barton, Vermont, was able to purchase three retorts, a bean cutter, an apple slicer, a bean belt and other assorted equipment from a state agency for roughly \$700.

The General Services Administration has also been a source of surplus equipment. Federally sponsored groups should investigate this possibility.

### Labor Requirements

Canning is unskilled seasonal work. CCC operations that utilize both cans and jars have sent one or two staff members to training sessions sponsored by the National Cannery Association and the Food and Drug

Administration. Though these training sessions are oriented toward larger commercial operations, they are required if the center plans any commercial production, since the training helps to fulfill part of the requirements for legally processing low-acid foods. The presence of a trained and certified processor also makes insurance easier to obtain. Information on training sessions can be obtained from state Departments of Agriculture.

Most self-service canning centers operate with a staff of two, although a larger staff can provide longer canning hours and other services. Commercial and staff-run canning centers involve up to 7 workers. Certain functions, such as administration and light maintenance, must be carried out beyond the canning season. If the sponsoring group can provide these, the labor needed is only seasonal and costs are lowered considerably. Most canning centers visited had sponsoring groups that handled administration and fiscal accounting.

Those canning centers that maintain a year-round staff often have an informal system whereby the workers put in considerable overtime during the harvest season, but make up for this by taking time off in the winter months. While a canning center may operate 11 hours a day, 6 days a week at harvest time, centers that opened during the rest of the year did so for 2-3 days a week.

#### Health and Insurance Regulations

The major health hazard in food processing comes from the possibility of food contamination. Many people encourage community canning as an alternative to home canning since there is more control over sanitation and proper food preparation techniques. In all canning centers it is important that supervision is adequate to assure proper cooking time. Most centers maintain a log recording the time in and the time out of the pressurized retorts. These logs help reduce the risk of dangerous mistakes.

Food and Drug Administration inspections and regulations center both on general sanitation and on verification of cooking times. Strict enforcement of FDA regulations would require a time/temperature recorder which

would automatically record the time and temperature as each batch is processed.

These federal regulations are applicable to any canning or food-related operation involved in production for interstate commerce. Self-service community canning centers are exempt from these regulations. Commercial community canning centers or those CCCs which are part of a larger facility engaged in commercial operations would be subject to FDA restrictions.

State requirements tend to be those general regulations covering food-related businesses. Most of these regulations cover basic issues of sanitation. Other state requirements commonly found include the right to inspect the canning center at any time as well as a yearly analysis of some test samples of the canning center's product. These regulations are easily obtainable at the individual state Departments of Agriculture.

Insurance needs of CCCs include general liability and product liability. General liability, which is required of all businesses, covers injuries to workers and users of the center. Product liability covers the possibility of a suit resulting from contaminated or poorly processed produce. General liability is relatively easy to obtain. Its cost depends on the size of the center and number and salary of the staff people. It can run from \$200-\$600 annually. Product liability insurance is more difficult to obtain. Since these centers are not under federal inspection, insurance companies tend to treat them as high risks. During the course of the study no canning center was encountered that had problems with poorly processed produce. A number of centers have not taken out this product liability insurance, although it is unclear what legal problems might ensue should a suit be brought against them.

### Local Requirements

Community canning centers are all fairly low-volume operations. Water and sewage requirements are minimal. Most centers encountered had few waste products. Produce discards tend to be utilized by the center staff

either for feeding the family pig or adding to a compost heap. Centers generally require a one-inch pipe for water and a four-inch drainage pipe for sewage. Most centers have been located in areas zoned for commercial use or in existing county or school structures. As yet there have been no zoning problems.

**APPENDIX 3: Centers Contacted for Study**

## TYPE OF OPERATION AND FUNDING

	Commercial					Funding						
	Jars	Cans	High value	Institutional	Non-Commercial	Staff run	Self-service	Cooperative buying supplies	Local	State	Fed.	Private
Community Self-Reliance, Inc. Northampton, Mass.	*		#	#	*	*	*			*	*	*
Keene Community Cannery Keene, N.H.					*		*		*	*	*	
Crashing Tower Pickles Montague, Mass.	0		0			0						
Gardens For All, Inc. Shelburne, Vt.	*				*		*					*
Cherry Hill Co-Op Cannery Barre, Vt.	*		*		*	*	*		*	*	*	
Northeast Kingdom Co-operative Cannery Barton, Vt.	*		*		*	*	*		*	*	*	
Rutland County Canning Coop. West Rutland, Vt.	*		*		*	*	*		*	*	*	
Claiborne County Community Cannery. Tazewell, Tenn..		*			*	*			*		*	
Abingdon Community Cannery Abingdon, Va.	*	*			*		*		*	*		
Botetourt Community Cannery Fincastle, Va.	*	*			*		*		*		*	*
Durham Community Cannery Durham, N.C.		*			*	*			*		*	



Emergency Food Services Community Cannery Pine Ridge, S.D.		*		*	*				*
Pumpkin Sour Plainfield, Vt	0		0		0				0
Georgia State Community Canneries	*	*		*		*	*	*	*
Laurel Grove Community Cannery	*			*		*	*		*
Community Canneries Rogersville & Telford, Tenn.	*			*		*	*		*

\* = Currently operating  
o = Closed down  
# = Planned for future

Full addresses follow

Community Self-Reliance, Inc.  
Hampshire Community Canning Center  
33 King Street  
Northampton, Mass. 01060  
Contact: Judy Gillian

Keene Community Cannery  
Keene State College  
Joslin House  
Main Street  
Keene, N. H. 03431  
Contact: Ms. Jean Eaves

Crashing Tower Pickles  
Montague Farms  
Old Chestnut Hill Road  
Montague, Mass.  
Contact: Ana Georgie

Gardens For All, Inc.  
Bay and Harbor Roads, Box 371  
Shelburne, Vt. 05482  
Contact: Tommy Thompson or Judy Loomis

Cherry Hill Co-Op Cannery  
Barre Montpelier Road, M-R #1  
Barre, Vt. 05641  
Contact: Jean Lathrop

Northeast Kingdom Cooperative Cannery  
P. O. Box 277  
Upper Main Street  
Barton, Vt. 05822  
Contact: Pat Croghan

Rutland County Canning Cooperative  
78 Marble Street  
West Rutland, Vt. 05777  
Contact: Rick Chinsley

Claiborne County Community Cannery  
P. O. Box 58  
Tazewell, Tenn. 37879  
Contact: Mrs. Leo Yokum

Washington County Community Cannery  
Abington, Va. 24210  
Contact: Ms. June Smith

Botetourt Community Cannery, Inc.  
P. O. Box 213, Fincastle, Va. 24090  
Contact: Jim McDowell

Durham Community Cannery  
Operation Breakthrough  
600 North Mangum  
Durham, N. C. 27701  
Contact: Lonnie Wilson

Emergency Food Services Community Cannery  
Ogalala  
Pine Ridge, S. D. 57764  
Contact: Bot Bettelyoun

Pumpkin Sour (see #5, Cherry Hill Co-Op Cannery;  
Jean Lathrop)

Rev. Roger Plant  
Vermont-New Hampshire Agricultural Cooperative  
8 Prospect Street  
West Lebanon, New Hampshire 03784

## Bibliography

- Ball Blue Book. The Ball Corporation, Muncie, Ind.
- Bread and Law Task Force. Community Food Preservation Centers (June 1975)  
5 State St., Montpelier, Vt. 05602. 25¢
- Canning Trade, Inc. A Complete Course in Canning. 10th ed. 1975  
2619 Maryland Ave. Baltimore, Md.
- Food and Drug Administration, H.E.W. "Food Service Sanitation", Federal Register 39 (191): 3750-3754 (Jan. 29, 1974).
- Gorham, Lucy, A Winter Harvest: A Handbook for Establishing Community Canning and Dehydration Centers. (1976) Maine Audubon Society, 53 Baxter Blvd. Portland, Me. 04101. 25¢
- Kansas Cooperative Extension Service. Management and Operational Assistance to Create a Community Canning Center: Final Report. Submitted to the Ozarks Regional Commission, (Jan. 1974) Manhattan, Kansas.
- Lee, Jasper S. and Charles B. Wood, eds. Food Preservation Manual. A Guide for School-Community Canneries in Virginia (1975) Agricultural Education Program Virginia Polytechnic Institute, Blacksburg, Va.
- Federal Register. "Manufacturing, processing certain canned food products" Food and Drug Administration HEW 39 (20): 35437-35470 (Oct.1, 1974).
- "Records Retention Requirements for Thermally Processed Low-Acid Foods Packed in Hermetically Sealed Containers." Federal Register, Food and Drug Administration HEW 38 \*16, Part III): 2398-2410 (Jan. 24, 1973).
- United States Dept. of Agriculture "Canning in Glass Jars in Community Canning Centers Agricultural Handbook #44. c/o USDA Publications Wash., D. C.
- Vermont Tomorrow. Food and Agriculture: A Citizens Guide to Community Development (July 1976) Virginia, 5 State St., Montpelier, Vt. 05602 \$1.00.

## ABOUT THE AUTHOR

Stephen Klein has worked both in New England and Latin America in rural economic development and organization.

In New England he is on the Clarification Committee of the New England Food Cooperative and has worked with the Massachusetts State Department of Agriculture and the Cooperative Extension Service in promoting a more self-reliant food consumption and food production system.

Previously, while in the Peace Corps, Mr. Klein worked with the Food and Agriculture Organization and the secretariat of agriculture of the Dominican Republic on developing a system of agricultural extension to be channeled through small farmer's organizations and cooperatives. He also served as zonal coordinator for relief supplies after hurricane Fifi in the agrarian-reform-controlled area of the Aguan Valley in Colon, Honduras.

Currently Mr. Klein, who holds a B.A. in political science from the University of California at Berkeley, is finishing a master's degree program in the Department of Urban Studies and Planning at MIT.



The Center for Community Economic Development (CCED) is an independent research group located at 639 Massachusetts Avenue, Cambridge, Massachusetts 02139. Its primary function is to conduct public policy research by examining the ongoing problems of community development corporations (CDCs) and of other community-based organizations. CDCs and other similar community groups are instituted and controlled by local residents to improve the economy of their home areas. The central aim of these organizations is to increase the participation of their constituents in the national's economic, social, and political life. R & D activities at CCED are designed to support that goal.

CCED also maintains a library, acts as a clearinghouse for materials and information on community-based economic development, and provides advocacy services related to its research. The work is supported by a grant from the federal Community Services Administration, as well as by other government and private funding sources.

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