FOOD FOR PEACE AROUND THE WORLD

Manual for Leaders in Community Feeding Programs

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FOREWORD

Under the Food for Peace Program certain foods are made available from the United States (through Public Law 480) to countries unable to meet their entire needs through the usual commercial channels. These foods are used in general to feed families and refugees in community centers and to assist in school lunch programs. This manual is written at the request of many persons in both government and voluntary agencies working on the Food for Peace Program around the world. These staffs work with the local governments to improve the diets of people through the use of these PL 480 foods.

This publication suggests ways of setting up or improving simple and inexpensive feeding centers, ways of using local food along with the PL 480 foods, and ways of preparing and serving the food.

The success of any project, whether large or small, depends on the ability and ingenuity of the persons responsible for its operation. When facilities are limited and workers are untrained in safe food handling, the burden is on the supervisor—he must see that the workers are instructed before they begin and that they are closely supervised as they work. Careful planning, therefore, must precede putting the feeding centers into operation.

The material in the pages that follow is basic to mass feeding, but in most cases it will have to be adapted to the local situation. It is hoped that this publication will be helpful to all who are working to improve health and well-being through community feeding centers and school lunch programs.

ACKNOWLEDGEMENTS

Ideas and contributions of home economists, health educators, community leaders and workers in voluntary agencies are drawn upon for this manual. Many of the illustrations and descriptions of equipment are from previous U. S. Government and Red Cross publications. The recipes were collected from sources in the United States and other countries, and all the material has been reviewed by home economists and nutritionists in U.S. Government Agencies.

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FEEDING PROGRAMS

Wherever we feed people—at home, at school, in a community center, or in an institution—we are interested in providing for their nutritional needs insofar as possible. What we feed them, how much we feed them at a given time, and when we feed them will depend on many factors. Available food, facilities, eating customs, economic conditions, sanitation, religious taboos, potential local production of food, attitudes of parents and authorities, and availability of labor and of supervisory services will all enter into any plans for initiating a feeding program.

Immediate needs and long term projection of plans can be considered separately, but they should be coordinated so that practices set up in the beginning can be built upon for future operation. Simple beginnings can be made to provide for the needs of hungry people without sacrificing sanitary precautions. The food offered should be as similar as possible to the food with which they are familiar in taste, appearance, texture, and manner of serving.

In many countries of the world, children's diets particularly need reinforcing at several points if normal growth and reasonably good health are to be attained. Some children as well as adults do not have enough food of any kind. In many areas the major lack is a food which is a good source of protein. This means that minerals and vitamins usually provided by such foods as meat, milk, eggs, and fish are also low in primarily vegetarian diets. Since PL 480 foods are likely to be predominantly cereals, efforts must be made to obtain meat, peas, beans, fish and eggs locally as frequently as possible. The nonfat dry milk which distributed is a significant nutritional contribution, but it is not available in sufficient quantities for persons of all ages in all areas.

When foods new to an area are to be distributed, it is well to first set up pilot programs to try ways of making the food attractive to the recipients. In making plans for such programs the help of many persons and groups should be sought. Careful consideration should be given to finding out who will be responsible for operating these programs. This information is necessary not only in training personnel, but also in developing a philosophy and concepts of these programs which have long-term implications for improving the nutrition of the people served. The development of nutrition education on many levels should go hand in hand with feeding programs. Therefore, the local authorities concerned with public health, education, agriculture, welfare and community development should be represented in the initial planning for any feeding program.

The nutritional goal of a feeding program should be to provide at least one-third of the individual's daily nutritional requirements. This goal is none too high, because in most instances the rest of the day's diet cannot be relied upon to provide the other two-thirds. In some instances it is possible to provide more than one meal or a meal and a snack.

Generally, feeding programs have started in a very small way, usually by serving milk made from nonfat dry milk. Even this seemingly simple operation presents certain problems, such as a source of safe water or clean facilities for making it safe, equipment for reconstituting the milk, cups to serve the milk in, facilities for cleaning up afterwards, and of course getting the children to drink the milk.

A sweetened beverage is more apt to be consumed than an unsweetened one in many places. In one country, for example, it was found that instead of adding sugar to the milk, a syrup made from locally produced dates was a good sweetener. Bananas, mangoes, molasses and spices are examples of other local products that can be added to milk.

Food customs and taboos in some cases prevent the use of milk as a beverage. In areas where drinking milk is not a practice, dry milk may be the basis for a thick soup or main dish in combination with cereals, peanut or soya flours, meat or fish and vegetables. This should be seasoned

to suit local taste. Dry milk added to breads, biscuits, cereals, etc., increases their nutritive value.

Some very practical measures are needed when formulating working arrangements for feeding programs. Since facilities will usually be nonexistent, the simplest beginnings must be made. Whenever possible plan to use food that can be eaten out of hond. However, this will not be a complete solution so when funds become available, a "drinkable meal" should be provided. This calls for a cup or bowl but does not necessitate fork or spoon. A sturdy aluminum cup is an all-purpose utensil that will stand up under hard treatment. A spoon can later be provided to eat food from the cup if this seems desirable and funds permit.

It is not possible to set up a single meal plan that will be suitable for all parts of the world. The guiding principle in all cases should be to start with the basic diet of the area and determine what modifications are needed to improve the nutritional quality within the framework of local customs. A very general meal pattern which could be adapted to different situations might be developed as follows:

1. Basic grain (rice, corn, millet, wheat, oats, barley) used as a cereal, a bread, or other forms.
2. Protein source from fish, meat, eggs, cheese, milk or legumes (dried peas, beans, soybeans, lentils, peanuts).
3. Fruit, vegetable or both.
4. Fats and oils, sweets and seasonings to taste in accordance with local food customs.
5. Milk or a milk product daily is very important but not always available nor acceptable.

The same food can usually be served to all the people who come to a center. Infants and older persons without teeth will usually be the only ones who need special attention. The amounts of food needed for different persons will vary according to body build, age, sex, and type of activity engaged in. Working men and women who are fed at the centers will need larger portions of food than inactive persons and small children. In order to meet individual needs it might seem that the most practical approach would be to feed children separately from adults. However, this is not always feasible because parents and children may not wish to be separated, nor is it always desirable in an emergency situation. In institutions and schools it is recommended that small children be fed apart from older children.

In making plans for setting up a feeding program the following steps are basic:

1. Work with the local authorities in health, education, welfare, agriculture, and community development.

2. Pay particular attention to local food, social, and religious customs.

3. Explore every possibility for obtaining and using local foods by such means as:
   a. Asking people to provide even small amounts of fresh vegetables and fruits.
   b. Teaching people to plant gardens in school yards, home plots, and community lands.

4. Train persons who are to supervise others; then work with them in training the others.

5. Develop procedures for preparing, serving and storing foods that are simple and use simple equipment that can be made locally.

NUTRITION

Food and water are necessary for life. The amount needed depends on many things. How old we are and how big we are make a difference in the amount of food we need. How much work we do, how fast we walk or run, how hard we play, how much we sit or stand or rest or sleep—all the things we do make us need more or less food than somebody else needs. Our needs also vary from time to time. Another thing that makes a difference is whether we are well or sick. Children and grown

people, men and women, boys and girls, young people and old folks all need a variety of foods to keep well and strong and to be able to do their daily chores. The amounts of various foods needed will differ for growing children and adults. Certain persons such as pregnant or nursing women have special food needs.

Children between the ages of one and three are growing rapidly and need more body building foods such as milk, meat, fish, eggs, fruits and vegetables for their size than their older brothers and sisters even though the older ones eat more of all foods. Because little stomachs cannot hold so much food at one time, children sometimes need to be fed between usual adult meal times in order to get enough of the needed foods. All the food given to them at any time during the day should add up toward meeting their total needs for good health.

To help us choose foods to eat we can divide them into different groups. Every day we can try to eat foods from each group.

Group 1.
Cereals and breads.
Group 2.
Milk, meat, fish, eggs, cheese, dry beans, peas and lentils, nuts, peanuts.
Group 3.
Vegetables and fruits.
Group 4.
Fats and oils.
Group 5.
Sweets, sugar, syrup, molasses, honey, jams.

Children need to eat the same foods as adults but they need more foods from the first three than from the last two groups.

Suggestions to Help Prepare and Serve Food Wisely

1. Serve children small servings, then extra servings if they want it.
2. Use cooked or left-over foods as soon as possible.
3. Cook young vegetables until tender in only enough water to prevent them from sticking to the pan. Avoid over-cooking.
4. When boiling vegetables, it is best to cover the pan. This saves fuel and food value.
5. Save the cooking liquid from pared vegetables to use in soups, sauces, gravy, or vegetable drinks.
6. Cook vegetables quickly. When the boiling method is used, the water should be boiling before the vegetables are added. After the vegetables are added, reheat to boiling and then reduce heat and boil gently until vegetables are tender.
7. Avoid cutting vegetables in small pieces or letting them stand in water before cooking.
8. Serve vegetables soon after they are cooked.
9. Bulgur wheat instead of macaroni, potatoes or rice may be used in soups and stews.
10. Soybean flour may be used in breads, puddings, dumplings, meatballs, casseroles and many other dishes to replace wheat flour, rice or macaroni.

SANITATION

Good, clean and safe food is important for health; unsanitary food causes sickness. The germs which transmit disease can get into food in a number of ways. If a person who handles food is unhealthy or does not have clean personal habits, she may infect the food she is preparing and cause others to become ill. Impure water also carries germs and hence is a health hazard. Dirty surroundings may form a breeding place for rodents and insects, which, by touching food, can spread disease. Unclean equipment and utensils are danger spots as well. Filth, in any form, should be constantly combatted wherever there is food.

It is important to have all food handlers know and observe high standards of personal cleanliness

and to have safe water, sanitary surroundings, spotless equipment and well-chosen storage places for food. In warm climates it is dangerous to keep many foods from one day to the next without refrigeration.

Personal Health and Cleanliness of Food Handlers

If possible, every person who handles food for community groups should have a physical examination and be certified by a competent physician as having no communicable diseases. Even with such precautions, colds and other diseases develop occasionally. Sick persons should stay away from work until they are well. Otherwise they may transmit their diseases to those who eat the food they have prepared. Even when feeling perfectly well, one should avoid sneezing or coughing into food while preparing it; should try not to touch one's mouth, hair or nose while in the kitchen; and should have a personal hand towel and drinking cup.

Food handlers should wear clean, washable clothing. They should have their hair bound with a scarf, band or hairnet. Perhaps one of the most important rules to observe is to wash hands thoroughly each time the kitchen is entered. Fingernails are breeding places for germs and should be cared for frequently. It is important to use hot water and soap when caring for the hands.

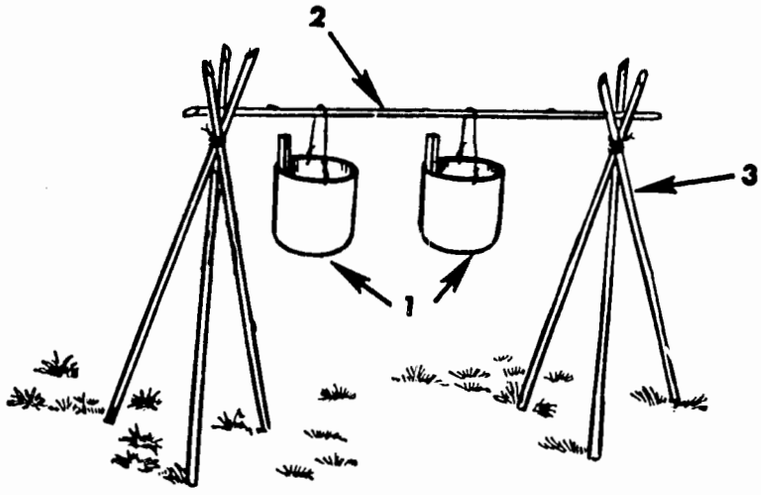
For washing hands, either use a sink or pan in the kitchen or build a special place outside for washing hands. To build a rack with buckets, use six poles to make two tripods (nail three poles together near the top for a tripod). Lay an iron rod, a pipe or a wooden board between the two tripods. Make two water containers from pails or large cans with wire handles. Hang these on the cross-rod. To wash, tilt the can to let water run out over your hands. Or you can use a can with a small hole and plug near the bottom. Take the plug out of the hole to let water run over hands, and then put the plug back in the hole.

Sanitary Food

Food should be prepared for cooking with great care. If vegetables, fruits or meats are used they should be washed well before cooking. Utensils in which they are mixed or cooked should be spotlessly clean. An important part of the sanitary care of food is involved in storage.

Care of the Storage Area

Keeping the storage area dry, clean, and aired is vital to preserving the foods. Circulating air helps keep food dry and cool and prevents germs and molds from growing. Air keeps food from smelling and getting musty, metal cans from rusting, and the ground and powdered foods from becoming hard.



Handwashing facility. (1. Cans. 2. Rod. 3. Tripod.)

If possible, have a window in the storage area—one near the top of the room and one near the floor for easy movement of air. Be sure that the window is covered with a screen, a light-weight cloth or woven grass. This will keep out insects and pests. An awning above the window will protect against rain and sun; it can be made of boards, tin, heavy cloth or bamboo fastened together.

Hints for Storing Food

Bulk foods should be stored in large containers. Foods such as potatoes, onions, and root vegetables can be put in clean cans, oil drums, tubs or large packing crates covered with wire mesh. Do not use cans which have been used for gasoline since some of the material in gasoline, such as TPC, may get into food and cause serious illness. Lids of wire mesh, or loosely-woven cloth, such as cheese cloth, should be pulled tightly and tied around the can. The cans should be put on supports such as rollers, wooden blocks, bricks or stones and kept off the ground.

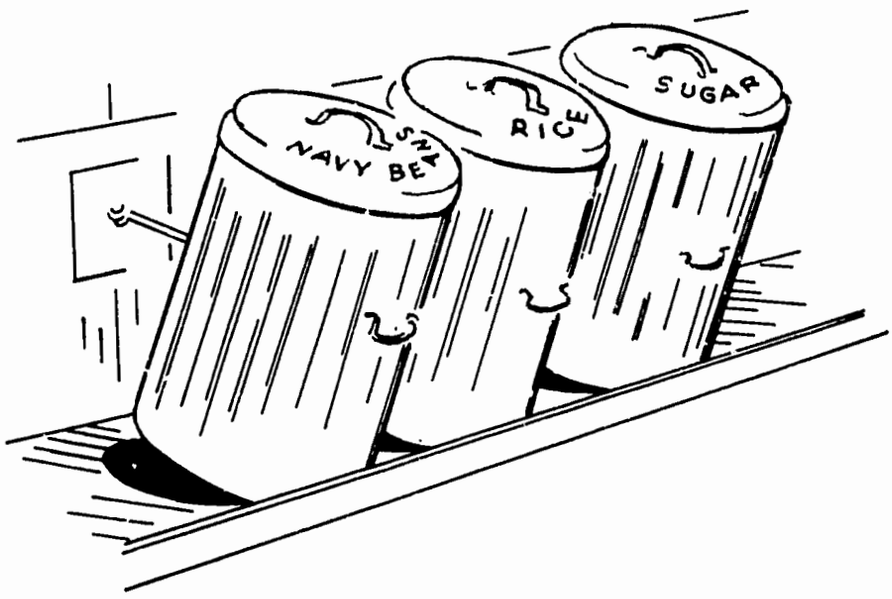
Other bulk foods like rice, sugar and beans should be kept in similar containers with tightly-fitting lids. It will be easier to get at the food if the cans hang by one handle on wall hooks so they are tilted. A board fastened to the wall near the floor helps hold the cans.

When placed on a shelf or on supports, containers should be about one inch from the wall so that air can pass behind the food. Label each container with the name of the food and the date it was put in, and keep it turned so the labels are easily read. Stack the oldest food in front so it will be used first. In placing food on a shelf, keep same kinds of food together, such as all bean products and all rice products. Do not place foods with strong odors like onions next to foods that absorb odors, as does flour. In general, food and containers should be spaced on a shelf so that they do not touch. Heavy foods and containers kept on the lower shelves are more easily reached; light foods such as nuts and peas can be hung on nails or pegs in loosely-woven bags.

As a final precaution, never store soap, cleaning powder and especially poison in the same area with food. Be sure to mark or label poison as "POISON."

Making Water Safe for Drinking and Cooking

"Think before you drink." Be sure the water you use is safe—unsafe water causes sickness. If the Health Inspector says the water is polluted there are two ways of making it safe: by boiling and by treatment with chemicals. Boiling is the safest method to use.



The boiling method requires the water to be boiled for at least ten minutes and left standing for 30 minutes before drinking. Water will taste better if stirred or poured from one clean container to another after boiling. This permits the air to get into it.

If you use the chemical method, there are three effective purifiers. One is iodine. Put 2 or 3 drops into four cups of clear water and 8 to 10 drops into four cups of muddy water, and let it stand 30 minutes before drinking. Another purifier is clorine bleach or household bleach. If there are no directions on the label, for every four cups (one quart) of water use two drops of 4 to 6 per cent bleach if the water is clear and four drops of 4 to 6 per cent bleach if the water is muddy. Let the water stand for 30 minutes before drinking. The third kind of purifier, chloride of lime, is made into a thick paste by adding three tablespoons of the powder to a small amount of water. (Add more water to this paste to make two cups.) Mix 9 drops to every four cups (one quart) of water. Again let water stand 30 minutes before drinking.

Making Safe Water Containers

Cut an oil can, a garbage can, or a kerosene can in half and wipe out the oil and waste. Be sure to wipe under the rolled rim and in the corners. Fill the can with water, add soap, boil for 10 minutes and empty the can. Then clean the inside of the can with a cleaning powder or with a mixture of ashes and sand, a mixture of sand, fine gravel and water, or a mixture of soap and ashes. Rinse the can several times. Fill it with water, boil again for 10 minutes, and empty. Now, it may be used for storing water. Naturally, it must be kept clean.

Glass jars can be used if washed with soap and hot water and rinsed with hot water. Or they can be scrubbed with the same cleaning powder mixtures as used for the cans and then rinsed with clear, boiled water. All containers should be washed frequently with boiled water and soap.

Dishwashing

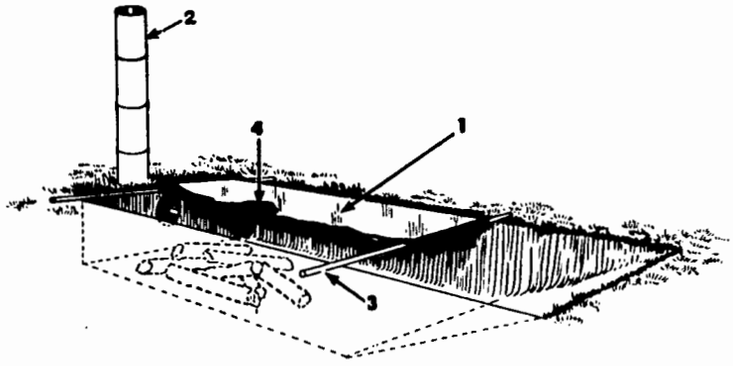
Scrape food from dishes before washing. Rinse the food from the dishes with cold water before you put them in the washing water. Dishes can be washed in a sink, large pans, tubs, garbage cans or kerosene cans (with the side cut off). Whatever is used must be clean. Be sure to rinse dishes in water which has been boiled for ten minutes.

If you use pans or a sink, wash dishes in hot water and with soap. You can scrub the dishes with sand or ashes if you do not have soap. Rinse the dishes in clean, hot water. And if you have a household bleach, put some in the second rinse and let the dishes soak for two minutes. Then lift the dishes from the water and dry in the sun or air or with a clean cloth. It is better to dry them in the sun when possible.

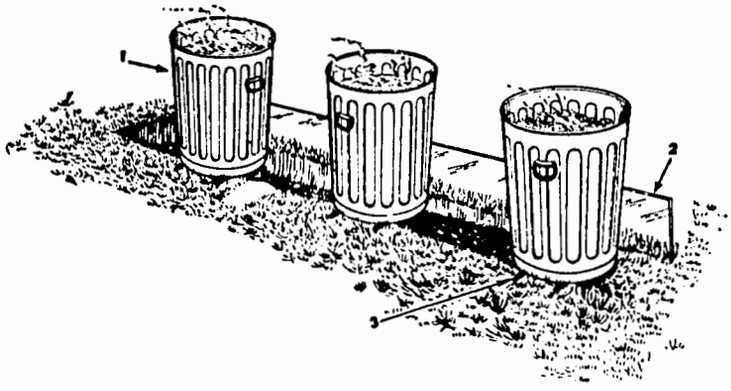
Move dry dishes to their storage place. This might be clean cans or oil cans with lids. If dishes are stored on shelves, they should be covered with a clean cloth to protect them from dust.

To wash dishes outdoors, use clean garbage can or oil cans and follow these steps:

1. Dig a ditch about 10 to 12 feet long, 1 foot wide and 1 foot deep. One end should taper to the level of the ground. (This ditch can also be used for cooking).
2. Put iron rods or metal plate supports across the ditch if needed to hold pans of water.
3. Build a fire the length of the ditch.
4. Heat until very hot two or three cans of clear water over the fire. One can is for washing dishes; if you have soap, put it in this can. The second can is for rinsing dishes. If you have a third can and some household bleach, use this water with bleach for a second rinse.
5. Before washing, scrape food from the dishes and rinse or scrub with soap, sand or ashes.
6. Put the dishes in a strong wire basket a little smaller than the cans to be used, then lift them into the wash water. Wash dishes while in the basket and then lift out of the wash water. A basket made of very strong grass or small reeds may be used instead of wire.
7. Dip the basket and dishes into the rinse water. Be sure the dishes are covered with water.



Ground Griddle
1.-Steel Plate. 2.-Pipe or Cans. 3.-Plate Supports. 4.-Sand or Dirt



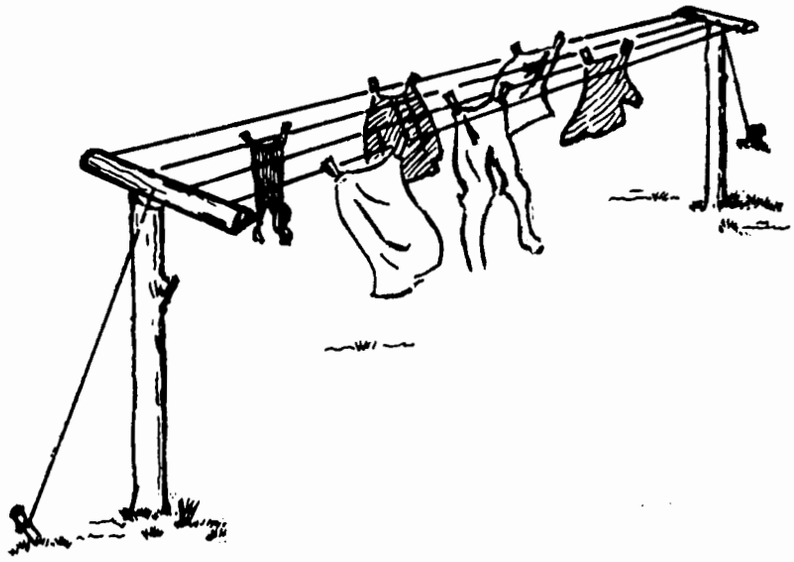
Emergency Dishwashing Facility
1.-Cans 2.-Shield 3.-Supports

8. If you use the second rinse with the bleach, dip the wire basket and dishes into it and leave for two minutes. Lift dishes and basket from the second rinse.
9. Place the dishes on a drain board or clean cloth to air dry or dry them with clean cloths.
10. Put the dishes away in their storage place. This might be in cans with tight fitting lids or on shelves. If they are stored on shelves, they should be covered with a clean cloth.

Dish Cloths

Dish cloths and other cloths must be kept clean. Wash dish cloths every day with hot water and soap, if possible. If you have a laundry or household bleach, use it once a week to clean and bleach the cloths and to kill the germs. Whenever you can, dry cloths in the fresh air and sunshine.

To dry the cloths make a clothes line by digging two holes about 20 feet apart and putting a sturdy pole in each hole about one foot into the



ground. Fasten a two-foot long board at the top of each pole. Attach firmly several lines of twisted grasses or rope to the boards so that they stretch between the two poles. Hang cloths on these lines to dry.

Making Soap and Scouring Cleansers

Soap is scarce in many countries. Often people make their own soap or use the pulp of certain leaves that will clean when rubbed on cloth or dishes. In olive growing countries waste fats of olive dregs are mixed with lye to make a hard soap.

A soft soap can be made by boiling liquid lye with fat. If lye cannot be bought make liquid lye by putting ashes in a wooden barrel. Tip the barrel to one side and make a small hole in the bottom of the tipped side (the side near the ground). Pour water over the ashes and let it drip slowly out through the hole into a container. Boil this liquid lye with fat to make the soft soap.

For scouring cleansers make a mixture of one of the following:

1. wood ashes and ground egg shell, or
2. finely-chopped hard soap and ground egg shell, or
3. wood ashes and sand.

Put the mixture into a can with a lid. Punch holes in the lid so you can sprinkle the mixture on to whatever you want to clean.

Getting Rid of Waste and Trash

To dispose of liquid or wet waste such as dish water and other liquids from the kitchen and eating area:

1. use water to water plants,
2. bury the waste with garbage, and
3. use a sinkage pit. (This is a hole in the ground lined at the bottom with rocks and pebbles.)

Trash should be burned or buried with garbage. Cans that are not usable for cooking or eating utensils should be opened at both ends, flattened and buried. Glass jars that cannot be used for drinking should be broken and buried. Burn as much trash as possible.

Some garbage can be used to fertilize plants; the rest should be buried or burned with trash.

Controlling Rodents and Insects

Rodents are mice, rats, rabbits, squirrels and other animals that gnaw food. Insects are bees, flies, ants, cockroaches, wasps, mosquitoes. Insects and rodents carry disease and ruin food, making it unfit to eat. They grow best in dirty places. Here are some suggestions to help keep them away from a feeding center.

1. Store food so that rodents and insects cannot get to it.

2. Empty garbage and trash often.
3. Keep working places clean.
4. Clean up everything spilled on the floor or ground.
5. See that no manure or other waste is left in the open near the feeding center.
6. If infested food is found, dispose of it—never eat it. Check all the food near by to be sure that it is not also infected. Clean and spray the whole storage area.
7. Tops of work surfaces should be covered with metal or some other suitable material so that dirt does not collect. Insects can breed in dirt of this kind.

Cockroaches are some of the worst pests in many areas. One important way to control cockroaches is to find where the eggs are laid and destroy them. Some places to look for the eggs are:

1. Around sink, pans or drainboards
2. In cracks around or under shelves and and cabinets
3. Around pipes which go from the outside to the inside of the building.
4. Behind mirrors, doors, pictures, mops, cans
5. Behind loose boards, cement, bricks
6. In sewers.

Kill cockroaches with insecticide sprays, bombs or dusts. There are several approved by the U. S. Department of Agriculture. One good insecticide is D.D.T. Be careful to follow the directions when using sprays or dusts for insects.

Efficient sprayers can be bought for very little money. Or you can make a sprinkler by punching tiny holes in the lid of a glass jar. Put the insecticide solution in the jar and sprinkle it over the area to kill or prevent insects. If you tie a cloth over your nose and mouth when using the sprinkler, you will not breath the fumes from the poisonous insecticide.

Insecticide to kill cockroaches and other insects can also be painted on surfaces with a brush or a cloth tied to a stick.

When you use insecticides, keep them out of the reach of children. Be sure they are marked "POISON". Always wash any spray or solution off the body. If you spray dishes, utensils or food, be sure they are carefully washed before using. Never use oil sprays or solutions near a fire.

Flies carry many diseases and should be kept away from all food. They can be controlled by screens, by insecticides and by destroying breeding places. Keep the feeding center free of manure, garbage, and waste. This is where flies breed. Insecticides can be sprayed, sprinkled, or painted on the area where flies are or are likely to be. To paint the solution on a surface, use a brush or a cloth tied to a stick. It will stay on the surface for several weeks and kill flies. A five percent D.D.T. in oil is effective. A fly swatter can be made by nailing wire mesh to a wooden handle and used to kill flies. If possible, all windows and doors in kitchen and dining area should be screened with wire or a loosely woven cloth like cheese cloth.

To control mosquitoes, find their hiding place and destroy the eggs. To prevent breeding:

1. Empty all water left standing and not used.
2. Fill tree holes with concrete or mud.
3. Cover all containers that hold water, or food.
4. Drain or fill in all places where water stands.
5. Kill mosquitos with insecticide that you get from a reliable source.

Check the Sanitary Standard of Your Center

This section suggests ways in which a manager of a lunchroom and the workers employed can judge for themselves how sanitary the conditions are in their center.

Checklist for Lunchrooms

The following is a series of "tests" or "checklists" that can be given to the workers. The questions point out some of the essential rules of sanitation.

Food Handlers	Yes	No
1. Do you wear clean, washable clothing when working with food?	☐	☐
2. Do you stay away from work when you have a cold or are sick?	☐	☐
3. Do you have a certificate from a doctor that you have no disease which might be transmitted to others?	☐	☐

Food Handlers (Cont'd.)	Yes	No
4. Do you wash your hands each time you enter the kitchen?	☐	☐
5. Do you wash your hands after going to the toilet?	☐	☐
6. Do you use soap and hot water when you wash your hands?	☐	☐
7. Do you avoid sneezing or coughing into food?	☐	☐
8. Do you avoid touching prepared food and the inside of utensils?	☐	☐
9. Do you wear a hair net, scarf or band of material over your hair to keep hairs from falling into food?	☐	☐
10. Do you keep your fingernails clean?	☐	☐
11. Do you keep hands away from mouth, nose and hair while working?	☐	☐
12. Do you have your own clean towel on which to wipe hands?	☐	☐

Water	Yes	No
1. Has water been tested and found to be safe?	☐	☐
2. If it is not safe, is it boiled 10 minutes or treated chemically. . .		
a. before using to wash fruits?	☐	☐
b. before using to wash vegetables which will be served raw?	☐	☐
c. before using to rinse dishes and implements used in eating?	☐	☐
d. before mixing with nonfat dry milk?	☐	☐
e. before drinking?	☐	☐
3. Are water containers washed frequently with boiled water?	☐	☐
4. Do you dry dishes in the sun when possible?	☐	☐
5. Are dish cloths washed every day?	☐	☐
6. Is soap used for washing dishes, utensils, and cloths?	☐	☐

Getting Rid of Waste and Trash	Yes	No
1. Are clean, covered garbage cans used?	☐	☐
2. Is paper burned?	☐	☐
3. Is garbage buried?	☐	☐
4. Are unused cans opened at both ends, flattened and buried?	☐	☐
5. Are unused glass jars broken and buried?	☐	☐
6. Do containers used for carrying water have handles on them?	☐	☐
7. Are these containers kept covered?	☐	☐

Controlling Rodents and Insects	Yes	No
1. Is all food stored in such a way that rodents and insects cannot get to it?	☐	☐
2. Is all waste material burned or buried so that it will not harbor rodents and insects?	☐	☐
3. If infested food is found, it it immediately destroyed?	☐	☐
4. Is spraying of all areas in kitchen done frequently in order to kill insects?	☐	☐
5. Are all insecticides marked "POISON"?	☐	☐
6. Is the kitchen screened?	☐	☐
7. Is the dining area screened?	☐	☐
8. Are all the rules regarding the control of mosquitoes followed?	☐	☐
9. Is the kitchen and the surrounding area well drained so that water does not stand anywhere?	☐	☐
10. Are tops of work surfaces covered with metal, oilcloth or other suitable material so that dirt cannot collect in pores of the wood?	☐	☐

If each employee can answer "yes" to all of these questions, the cleanliness standards of the center are very good. Checks of this kind should be made frequently and workers encouraged to improve.

ORGANIZING A SCHOOL LUNCH OR COMMUNITY FEEDING CENTER

Location of the Food Preparation Center

Here are things you should think about when you choose a place for the feeding center.

1. It should be located so that it is easy for the users to come and go.
2. It should be near the road that brings food and supplies.
3. It should be near clean water if possible.
4. It should be on dry ground.

The kitchen may be placed inside a building, outside in the open or outside under a shed.

1. **Kitchen Inside a Building**
   a. Floors should be solid.
   b. Roof should not leak.
   c. It should have at least one window, more would be better.
   d. It must have a door opening to the outside.
2. **Kitchen Outside in the Open**
   a. The ground should be level and dry.
   b. There should be some shade if possible.
   c. There should be no broken glass, cans or other trash surrounding the kitchen.
   d. There should be no stumps, tall grass or weeds where insects can hide.
   e. It should not be near standing water.
3. **Kitchen Outside Under a Shed**
   a. The shed should be built by the local people under supervision. It helps portect the kitchen and equipment.
   b. **Roof** - The roof can be made of straw, canvas, tarpaulins, boards or metal roofing held up by siding boards, bamboo or sapling poles. In tropical countries an open area between walls and roof is desirable. This open area should be screened.
   c. **Walls** -
      (1) The walls may be made of saplings woven with small branches of trees and plastered with mud, water, and straw.
      (2) They can be made of adobe. (A mixture of clay, sand and straw that dries into a hard surface.)
      (3) They can be made of woven straw or bamboo.
      (4) A very strong wall may be made from brick or stones cemented together.
   d. **Floors** -
      (1) Floors can be made of cement, wood, brick, stone or other material.
      (2) A dirt floor can be made hard by adding a thin layer of clay mixed with sand and straw, but such a floor does not withstand scrubbing.

The Kitchen Plan

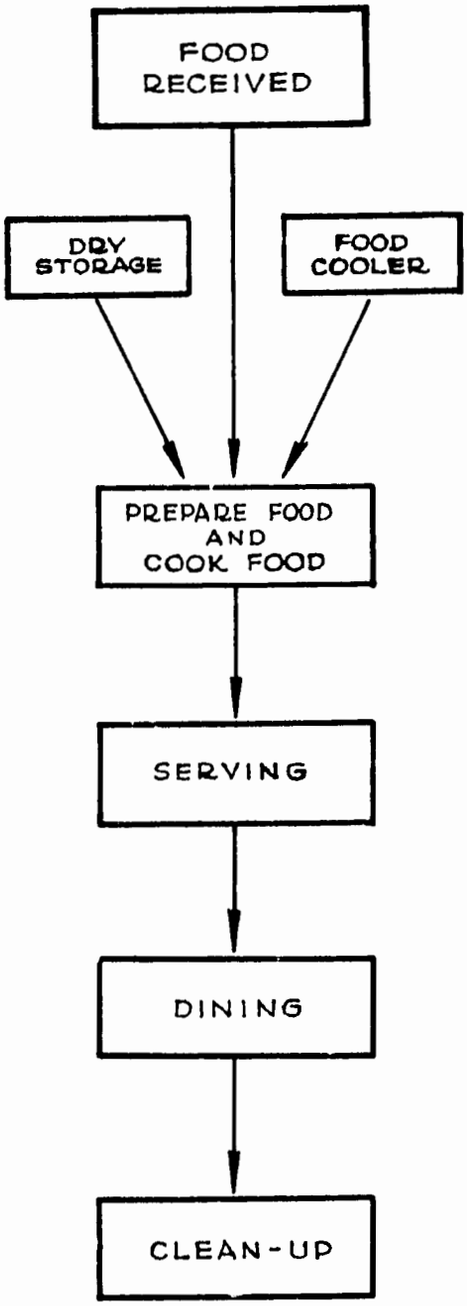
After you have decided upon the location of your food preparation center, you should start planning your kitchen. Here are the tasks that must be done, and there should be a definite place to do each:

1. Receive food, supplies and equipment
2. Store food
3. Store supplies and equipment
4. Wash hands
5. Prepare and cook food
6. Serve food
7. Eat food
8. Wash dishes, pots, pans and other utensils
9. Get rid of garbage and trash (Clean-up area.)

Equipment should be placed in the kitchen so that the workers can perform their tasks easily and quickly.

A good kitchen has:

1. **A Place to Receive Food**
   If food is not needed where it is received, it is taken to either the dry storage or placed in the food cooler.
2. **A Place to Prepare and Cook Food**
   The food is made ready to serve. This may consist of such things as washing vegetables, chopping meats, getting foods ready to cook and cooking them.
3. **A Place to Serve Food**
   Food is placed on the eating utensils. Beverage is usually served. The eating implements are usually passed.
4. **A Place to Eat Food**
   Food is eaten in the dining area which may be a classroom or the dining room in an institution. In the beginning, it may be in the open.



5. **A Clean-up Area**
   This includes facilities for dish washing and getting rid of trash and garbage.

A Place To Store Foods

Certain foods should always be kept on hand—such foods as flour, salt, rice, cornmeal, fat, potatoes and many others. These foods should be kept in a place that is used only for storing foods. It should be a separate room. If it is not a separate room, it should be in one section of the kitchen.

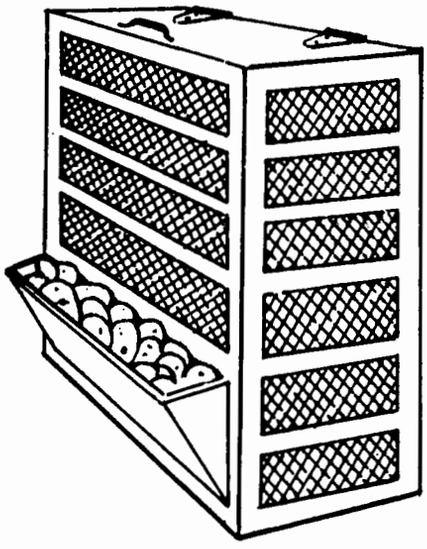
Good storage helps keep food from spoiling, keeps it away from bugs and dirt, and keeps it from being stolen or catching fire.

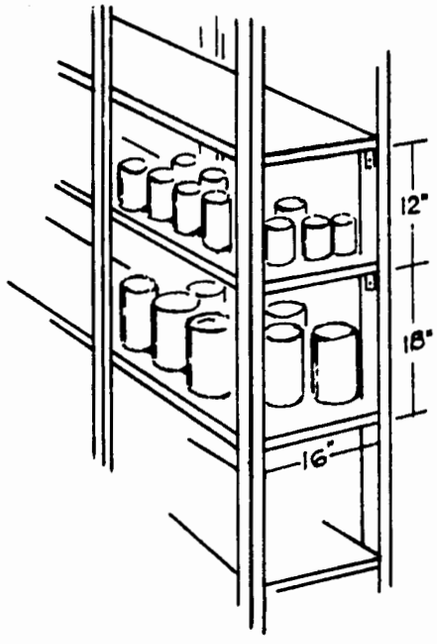
Food can be stored inside the kitchen or outside according to needs.

1. **Inside Storage**
   a. The size of the storage area depends on the amount of food to be stored, the number of people fed and the frequency of deliveries. A general rule is that this area be from 1/5 to 1/6 the size of the kitchen.
   b. There should be ample air in the storage area, and at least one window. Two would be better. A window near the ceiling and one near the floor will keep the air moving.
   c. Shelves should be strong. They can be made of any strong material available such as bamboo, wooden crates or boards nailed together.
   d. The shelf should be 1 to 2 inches from the wall.
   e. The top shelf should be within easy reach of the workers.
   f. The bottom shelf can be 24 to 30 inches wide, and the top shelf 10 to 20 inches wide. The bottom should be several inches from the floor.
2. **Outdoor Storage**

In many countries it is necessary to store some fruits and vegetables in outside storage places. Several methods can be used.

a. A Post and Plank Cellar
   (1) In many climates this cellar can be used to store fruits and vegetables. If both are stored, they should not be stored together.
   (2) To build a post and plank cellar:
      (a) Dig a hole ample in size to hold foods to be stored and about 4 feet deep.
      (b) Set two rows of posts (all the same size) in bottom of the hole near the side walls. In the middle put a row of posts about 5 feet higher than the other posts. Planks are laid on the two outside rows.
      (c) A roof of planks or slabs can then be put in place.
      (d) Close the ends and cover the whole cellar except the door, with soil. Door may be made of planks or other durable material.





b. Cone-shaped Outdoor Pit:

(1) This type of storage pit has been successfully used where the climate is comparatively dry and the weather is cold at the time of storage.

(2) The pit may be used for storing potatoes, carrots, beets, turnips, salsify, parsnips and cabbage, winter apples and pears, properly separated.

(3) To build the pit:

(a) Spread a layer of straw, leaves or other similar material on the ground. Stack the vegetables or fruit on the straw.

(b) Cover the vegetables or fruit with more straw or similar material.

(c) Cover the whole pile with soil until the soil is two or three inches thick. Pat the soil to make it hard. The pit should be covered with boards or a piece of metal to keep the inside dry.

(d) If the pit is small, the vegetables will get enough air if the straw comes up through the dirt. If the pit is large, you should put a board up through the middle of the vegetables and the dirt.

(e) Be sure that area on all sides is well-drained.

c. Cabbage Storage Pit (Under the Ground)

(1) This pit can be used for cabbage and root vegetables.

(2) To build the cabbage storage pit:

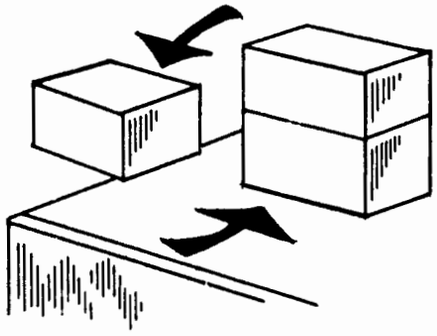
(a) Dig ditches about 8 to 10 feet long, 1 foot deep and wide enough to hold the number of cabbages to be stored.

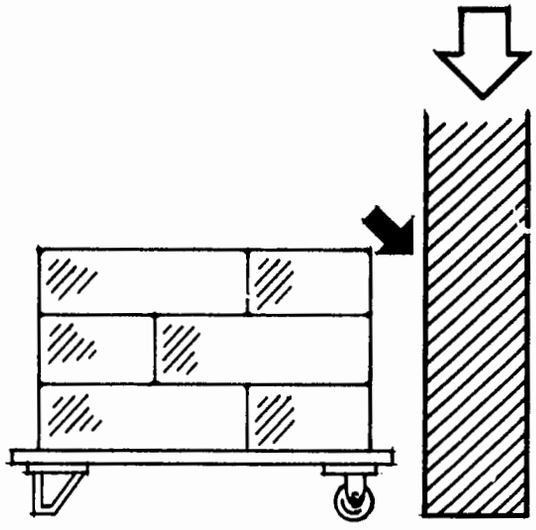
(b) Put cabbages in the ditches and pack dirt around the roots.

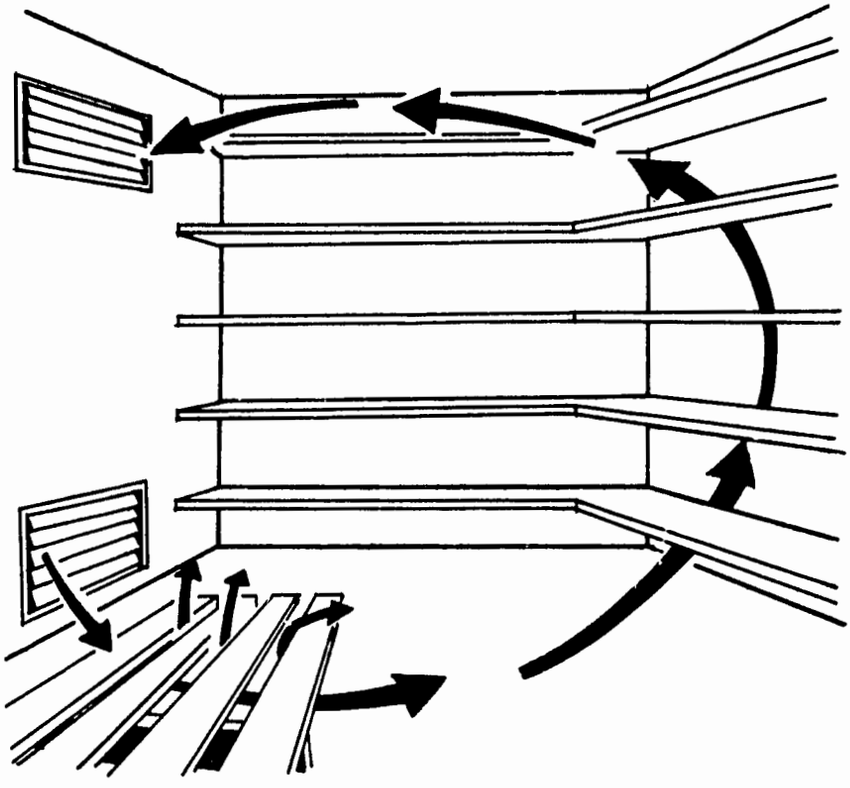
(c) Put a board or stake at the end of each ditch and a plank or board on top of the end boards. This makes a top for the cabbage and should be about 3 feet high. Pack soil around the planks.

(d) Cover the pile with a lot of straw, hay or similar material. Place poles across the top to hold the straw, hay or other material.

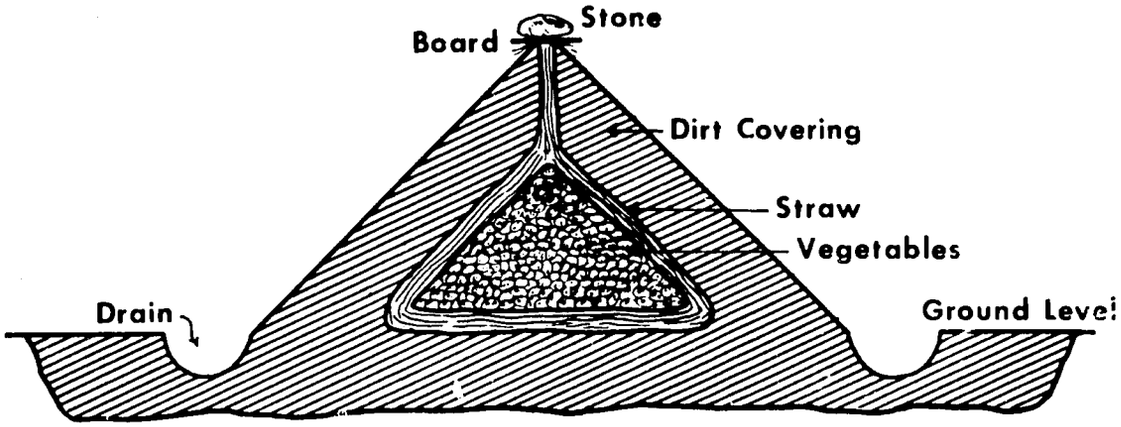
(e) When ready to use the cabbage, cut the heads off with a knife. Leave the roots to grow in the spring for a green vegetable.



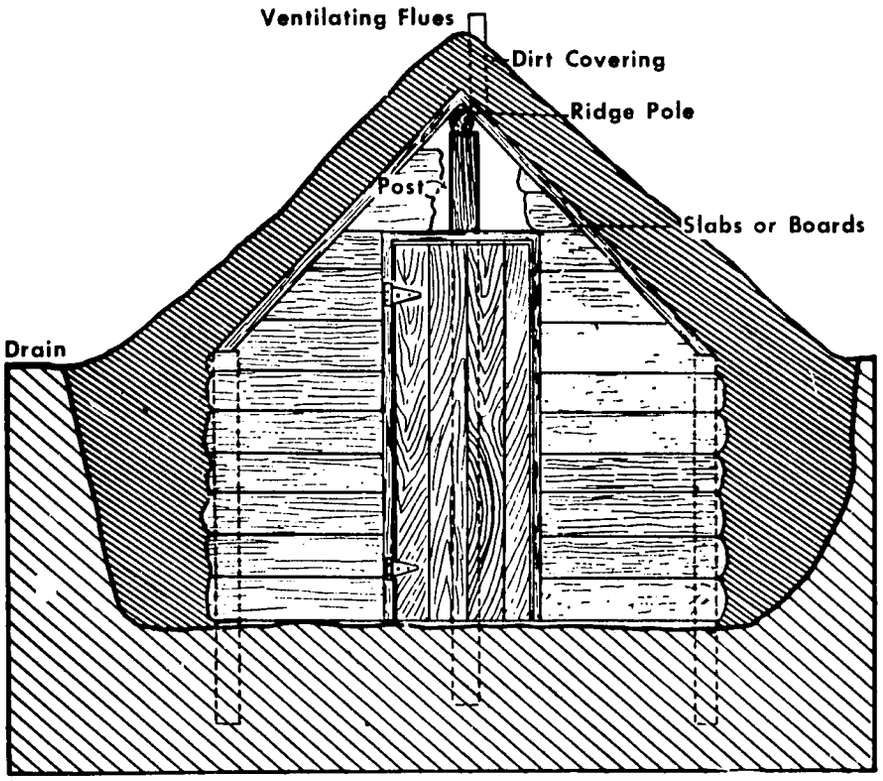




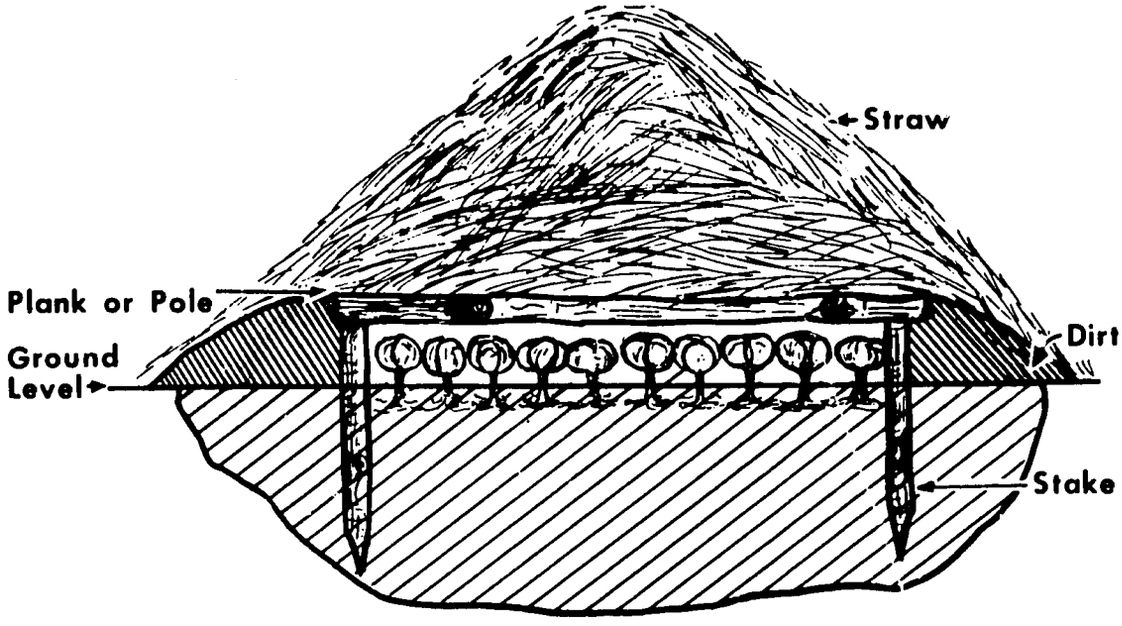
Several points of safe storage are illustrated here. The picture at the top left, shows how new food is placed on the bottom so that the older food on top will be used first. The picture at the top right shows cans or boxes containing food raised from the floor by rollers or blocks and kept away from the wall. Circulation of air through properly spaced shelves is illustrated at the bottom.



Cone Shaped Outside Storage Pit



Outdoor Post and Plank Cellar for Fruits and Vegetables



Cabbage Storage Pit (Underground)

d. Open Barrel Storage
   (1) This pit may be used to store cabbage, sweet potatoes and pumpkin.
   (2) To build this pit:
      (a) Use a barrel or oil drum with one end cut out. Place straw and then food inside. Cover the food with straw or similar material.
      (b) Cover the whole barrel with alternate layers of straw and dirt. Pat the dirt to make it hard.
      (c) Cover the pit with a piece of metal or boards to keep it dry.

A Place To Prepare and Cook Food

You should have a place in your kitchen where you can cut, chop or peel vegetables and fruits, cut meat, dice bread and do many other jobs. Many kitchens have a table for these tasks.

The table should be in the center of the kitchen or near the center to make it easy to reach the outside door, the storage room, the sink and the stove.

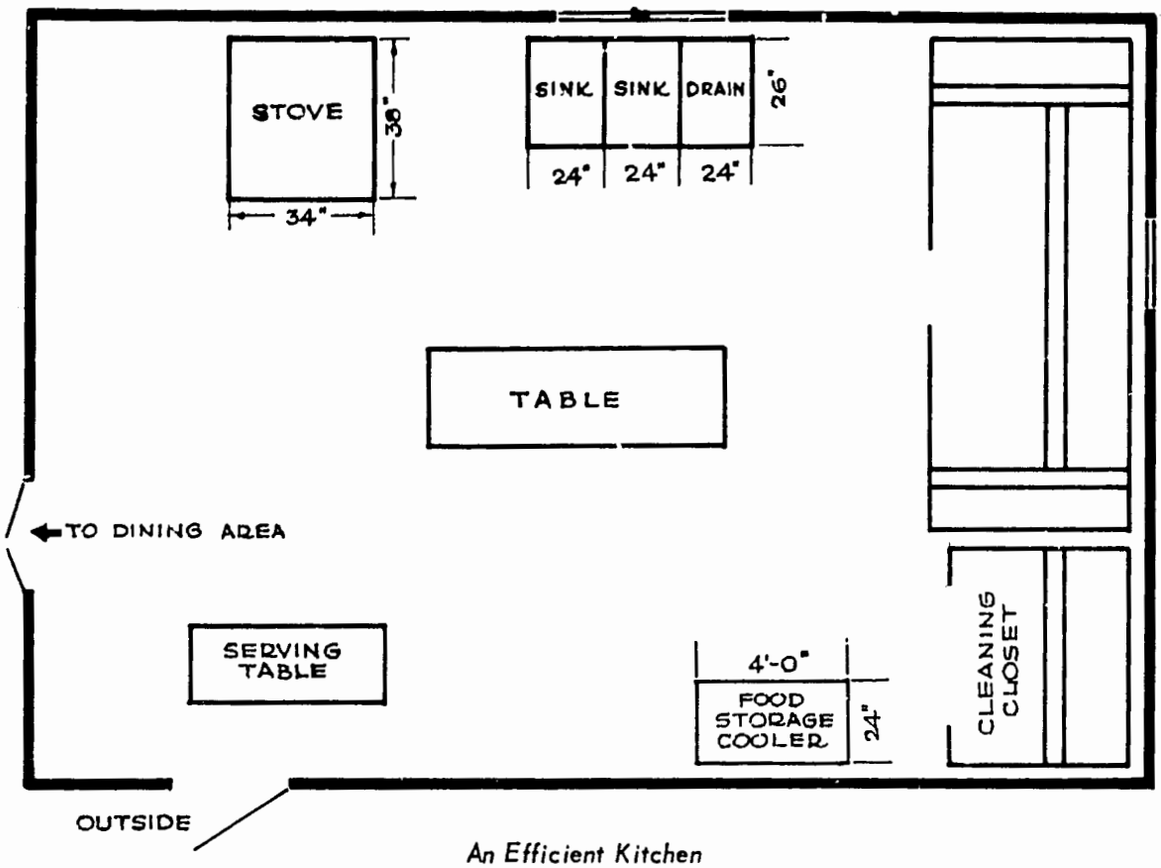
Your kitchen should have a sink or a utensil to hold water. It can be a clean oil can, large pans, buckets, metal tub, oil drum or a garbage can.

1. The sink or other utensils, such as for washing dishes, can be placed at the end of the table or next to the wall. If next to a wall, there should be a window above it.
2. The sink or other utensil for water should be easy to reach from the table and the clean-up area.
3. The sink can be used for the clean-up job, such as washing dishes. Dishes should be scraped or rinsed before washing. The stove or other cooking equipment should be easy to reach from the table, sink and serving area. And it is good to place it away from the food cooler and in a place where it can get a draft.

A Place To Serve Food

You may want to serve some foods from the stove, but it is easier and faster to serve most foods from a definite place in the kitchen. In this area you will need the following equipment:

1. A table or shelf from which the food can be served.
   a. A shelf can be made from wood or metal which will not rust.
   b. A table and/or shelves can be used for serving.
   c. If a table is used, it should be movable.



An Efficient Kitchen

2. The utensils needed for serving and eating should be stored in this area.

The persons to be fed should be able to move from the serving table to the eating area without crossing the serving line.

A Place To Eat Food

There should be a definite place to eat that will not be in the way of the workers. Persons can eat at desks or tables and sit on kegs, strong boxes, metal cans or on the ground.

The eating area should be close to the serving table and the clean-up area.

The Clean-up Area

This includes dishwashing and getting rid of waste and trash. The area should have the following equipment:

1. The sink, cans, pans or tubs for washing dishes and utensils.
2. Cans for trash and garbage.

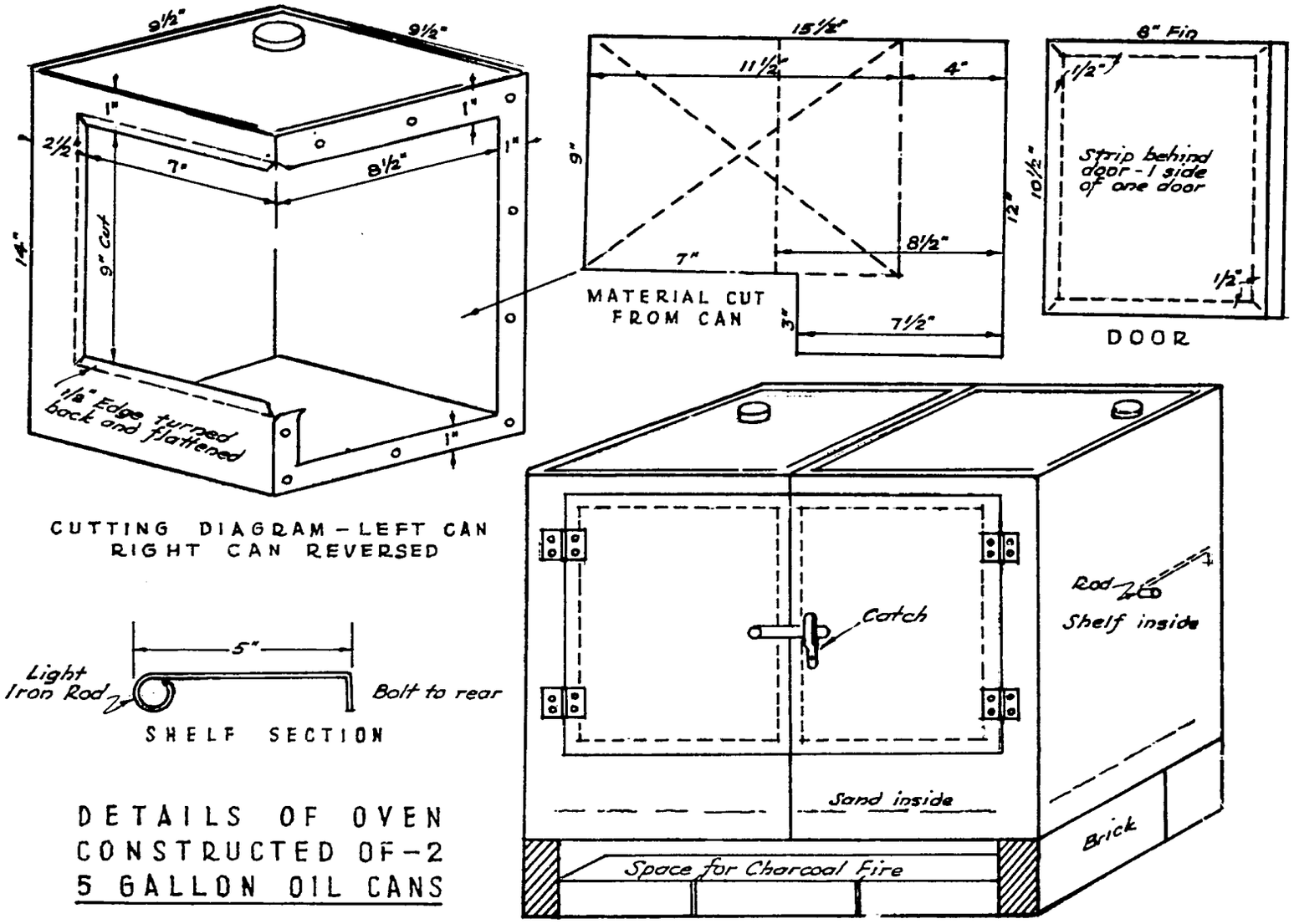
EQUIPMENT NEEDED FOR THE KITCHEN

Equipment may be bought at the local market if funds are available. In many countries, or under emergency conditions, it is necessary to use equipment which can be obtained at little or no cost. A piece of equipment needed in one country may not be necessary or practical in another. The food prepared, the type of recipes used and other factors may influence requirements. Many pieces of equipment which can be made locally will work well in preparing food. The suggestions which follow may be adapted in accordance with conditions.

Large Equipment

A. Stoves

1. The type of stove in general use in the community is usually more successful than a new or unknown type.



Details of Oven
Constructed of – 2
5 Gallon Oil Cans

a. The stove should be at an easy working height when worker is standing. It may be placed on a strong table or built into a stone and cement base.
b. The number of stoves you need will depend upon the size of the stove, the amount of food to be cooked and the size of the cooking utensils.

2. Some countries use an iron stove which has both a cooking surface and an oven.

B. Ovens

Baking is a problem if you do not have an oven. Here are suggested ovens which you can build.

1. Ovens From Kerosene Cans
   a. This oven may be used for breads, puddings, and other baked foods.
   b. Building the oven:
      (1) Solder together two clean kerosene cans. Cut a hole in the bottom of each can. Cut a door out of one side, and place one or two shelves inside.
      (2) Put the oven over a charcoal grill.
      (3) Put food to be cooked in pans and place them inside the oven. The coals may be put on top of the oven to give more heat.
      (4) If you want a larger oven, solder more kerosene cans together. If a larger oven is used, it should be placed over a bed of hot coals instead of over a grill. These ovens must be built carefully if they are to last.

2. Outdoor Ovens
   a. The outdoor oven is very good for baking bread and other food such as potatoes, beans, cereal, casserole dishes, cakes and cookies.
   b. To build the outdoor oven:
      (1) Use adobe or bricks for dome shaped oven, with clay for plastering.
      (2) Lay the bricks on the ground to make a four-foot square and one-foot high base of the oven.
      (3) After the base is laid, stack the bricks into an oval shape. (The brick corners should be cut off as the bricks are laid.)
      (4) Make a front opening about three feet high and two feet wide.
      (5) Make a small hole at the top of the oven to let out the smoke.
      (6) Make wooden or metal covers that fit tightly over the front opening and the smoke hole.
      (7) Plaster the inside and outside with a mud mixture or cement.
   c. How to use the outdoor oven.
      (1) Open the smoke hole and door. Build a fire inside the oven.
      (2) When the fire has burned down to ashes, sweep out the ashes.
      (3) Put the food to be cooked on trays or on the well-swept floor.
      (4) Cover the smoke hole and the door opening. Be sure they are tightly shut.
      (5) Bake bread for 1 to 1½ hours, other foods until done. Experience will teach the cook just how long the food must bake.

C. Fireless Cooker

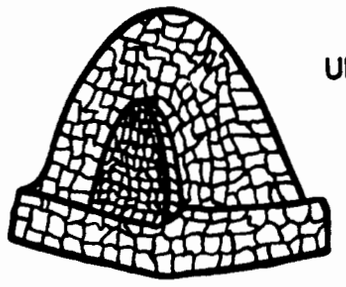
The fireless cooker is used for cooking stews, soups, cereal, and other foods that are cooked slowly. This cooker saves fuel and is useful, therefore, in countries where fuel is hard to get. It may be built from two containers, one fitted into another and separated by sawdust, small bits of paper, sand or other layers of insulation.

In order to build it you will need:

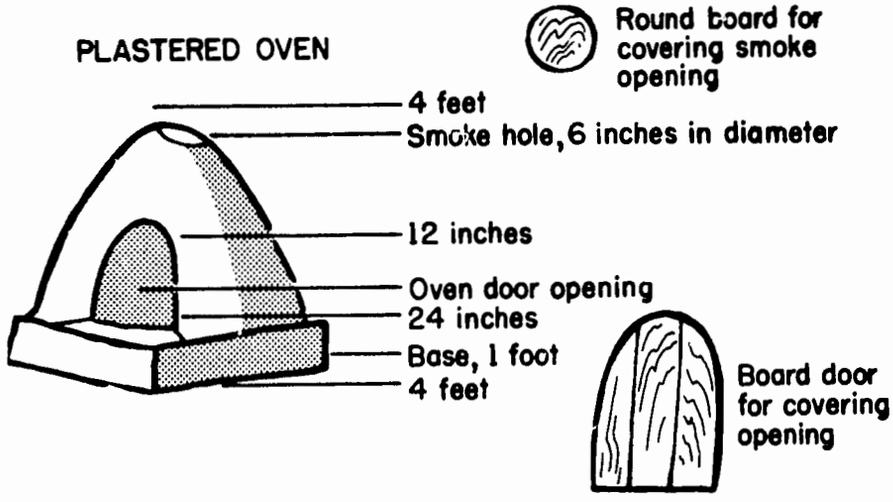
1. An outside container. This may be a wooden box, a large metal can or a tub.
2. An inside container. A metal can 5" - 10" smaller in diameter and at least six inches lower in height than the outside container. This can should have a tight-fitting top.
3. A piece of asbestos or building paper large enough to cover bottom, top and inside walls of outside container.
4. Saw dust, finely chopped straw, or cup-up newspaper for insulation.
5. A piece of oilcloth or other heavy material for making pillow for top.

To make the fireless cooker:

1. Wash and dry the outside container.
2. Make sure loops or handles and lid for the container are all tight.



UNPLASTERED OVEN



Outdoor Oven

3. It is helpful to put rollers on the bottom of the container so that it can be moved about easily.
4. Place paper roll about 3 inches thick on the bottom of the container. This roll should be nearly as large as the base of container.
5. Line the inner walls of outside container with sheet asbestos or heavy building paper.
6. Cut a circle of asbestos one inch larger than the bottom of the container.
7. Set the inside container on the circle of asbestos which has been placed on top of the paper roll.
8. Pack crumpled paper, sawdust or straw between the two containers on all sides to within 1 - 1½ inches of the top; then, if building paper is used, bring it over the crumpled paper to help hold it in place.
9. If asbestos is used, cut a collar of asbestos or heavy cardboard paper to fit around the can and inside the container. This collar may be covered with oilcloth to make it easier to keep clean.
10. Make a cushion or pillow for the top from two pieces of cloth such as denim, muslin, or oilcloth. This should be as large as the top of the outside container.
11. The heating stone:
    a. It may be a flat piece of slate rock that will fit inside the can or a sand and cement disk. Cast iron is also good.
    b. To make a sand and cement disk mix equal parts of sand and cement with water to make a stiff mush. Make a pattern for the stone by cutting a circle from some cardboard a littler smaller than the inside container. Fit a two-inch wide band or collar around the circle. Place the collar on heavy paper or board. Pour half the cement-sand mush into the pasteboard form. Put screen wire, chicken wire netting, or long nails

into the cement. Add the rest of the mush. Make the stone smooth on top with a small hole in the center. Set a small eye or hook in the hole by which the stone can be lifted. Let the stone stand 48 hours or until it is hard. Remove the collar, place the stone in cold water, and let boil for 30 minutes. Cool slowly.

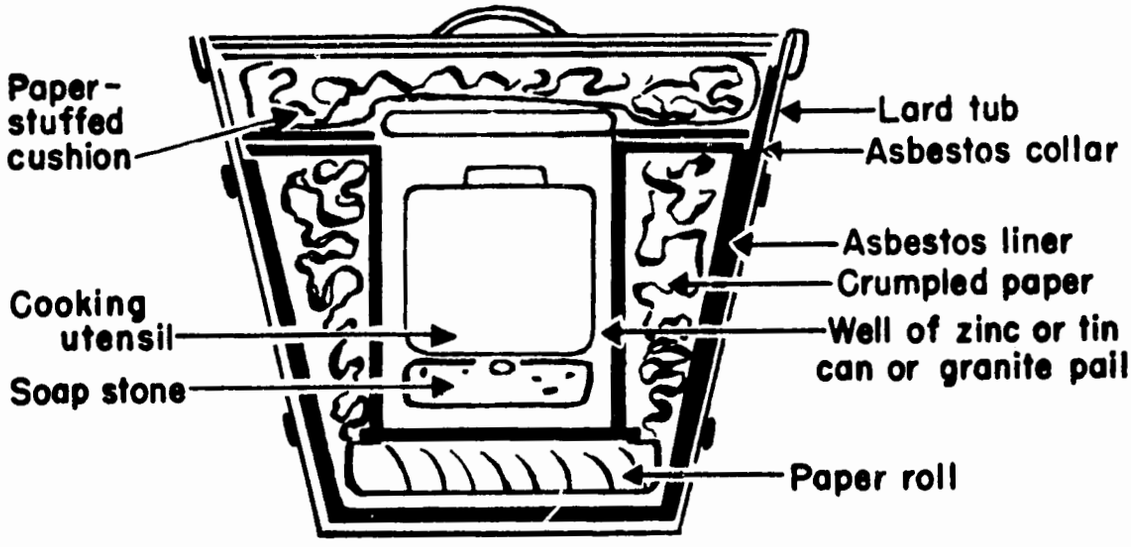
12. Using the fireless cooker
    a. It is important that the cooking can as well as the cooker be washed and left open when they are not in use. It is good to let them stand in the sunshine.
    b. It is not necessary to use much water with the food when using this cooker.
    c. Foods should be brought to a boil and cooked for 4 or 5 minutes in the pan over an open fire. Then the lid is placed on the pan and both are put on the stone which has been heated over a fire until very hot. The pillow is then put over the can and the cover for the outer container is fastened securely.
        (1) Cereals can be cooked all night.
        (2) Beans should be soaked over night, then brought to a boil, boiled for 5 minutes, and placed in the fireless cooker on the hot disk for 4 to 5 hours.
        (3) Dried fruits can be cooked in this manner. These are washed, then soaked for one hour. Allowing 2 cups of water for one cup of dried fruit, let it boil for 5 minutes, then place in the cooker for 4 hours.

D. Open Fire Cooking Unit (Out of doors)

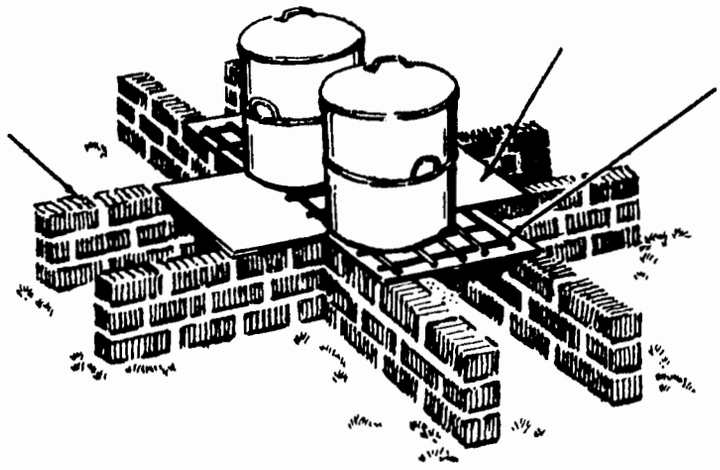
1. This cooking unit may be used for heating water, cooking soups, stews, and boiling vegetables.
2. To make the open fire cooking unit:
    a. For cooking you may use a large pan, a clean oil can cut in half or a clean garbage can.
    b. Place the cooking pan on bricks or stones. There must be room to build a fire between the bricks and under the cooking pan.
    c. Bend sheet metal to fit around the bricks and the cooking pan. This will act as a shield and will give a draft for the fire.
3. To use the unit, build a fire under the pan. Move the shield as needed for a draft and for adding more fuel.
4. If you are feeding 100 persons, you will need two such cooking units.

E. Crossfire Ditch (In the ground)

1. This method of cooking can be used for boiling vegetables, meats for stews, cooking cereals, or soups, for pan frying, or for heating water.



Homemade fireless cooker



Crossfire ditch (above the ground).

2. To build the Crossfire ditch:
   a. Dig two ditches that cross in the middle. The ditches should be 8 feet long, one foot wide, and one foot deep. The ends should gradually slope to the level of the ground.
   b. Place iron rods where the two ditches intersect to make a grate above the firepit. Put metal strips around three sides of firepit.
3. To use the Crossfire ditch:
   a. Build a fire in the firepit.
   b. Put food in a pan and place on the grate to cook.

F. Crossfire Ditch (Above the ground)

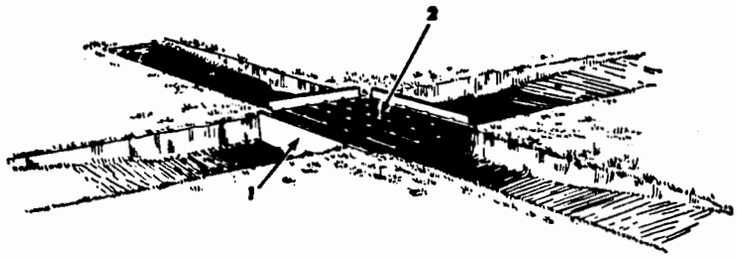
1. This method of cooking can be used for boiling vegetables, cooking soups, stews, pancakes, sauces, cereal, and for heating water.
2. To build the Crossfire ditch:
   a. Lay 2 rows of bricks, 1 foot apart, then two more rows of bricks to form a cross 4 or 5 feet long. (The center forms a hole and is for the fire)
   b. Form walls by stacking bricks or stones and putting cement between them.
   c. Lay a piece of sheetmetal over the hole. (You may want to put scrap iron over the metal to make a grate.)
3. To use the Crossfire ditch:
   a. Build a fire in the hole under the sheet metal.
   b. Place cooking pan with the food over the grate.

G. Ground Griddle

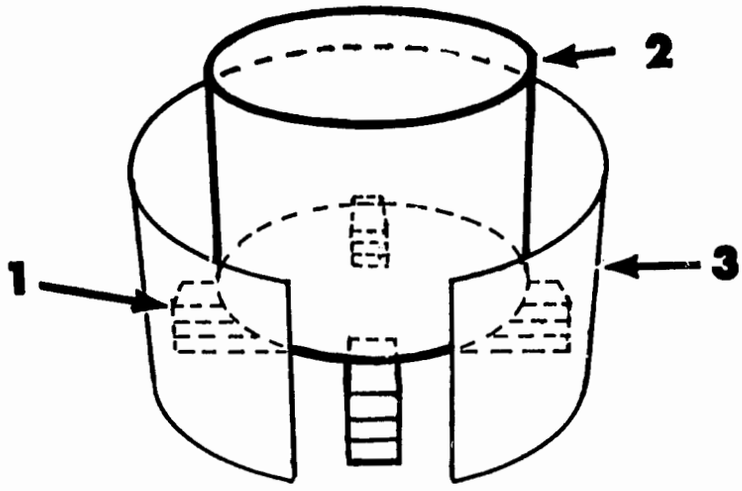
1. This method of cooking can be used for boiling vegetables, meats, for cooking pancakes, as a quick bread oven using a tin can to cover dough, for heating water or as a food warmer.
2. To build the griddle:
   a. Dig a hole (fire pit) 2 feet long, 2 feet wide and 1 foot deep. One end should slope to the level of the ground.
   b. Put pipes across the sides of the hole to support a plate made of sheet metal or cast iron.
   c. Place the metal plate over the pipes. Cover the plate with one inch of dirt and sand.
   d. Put another plate over the dirt and sand.
   e. Behind and at the center of the deep end of the fire pit, dig a hole 6 inches square and 6 inches deep. This hole must open into the firepit. Cut the ends from several cans and stack the cans over the 6 inch hole to form a chimney.
3. To use the griddle:
   a. Build a fire in the firepit.
   b. Place pans with food on the griddle.
   c. Pancakes can be cooked on the griddle. A small amount of fat should be used on it when pancakes are cooked.

H. Outdoor Roaster

1. This method is very good for cooking meat.
2. To make the outdoor roaster:
   a. Stack two layers of brick or stone in a large circle.



Crossfire Ditch
1.-Sheet Metal 2.-Grate



Open-fire Cooking and Heating Unit
1.-Bricks 2.-Oil Drum 3.-Shield

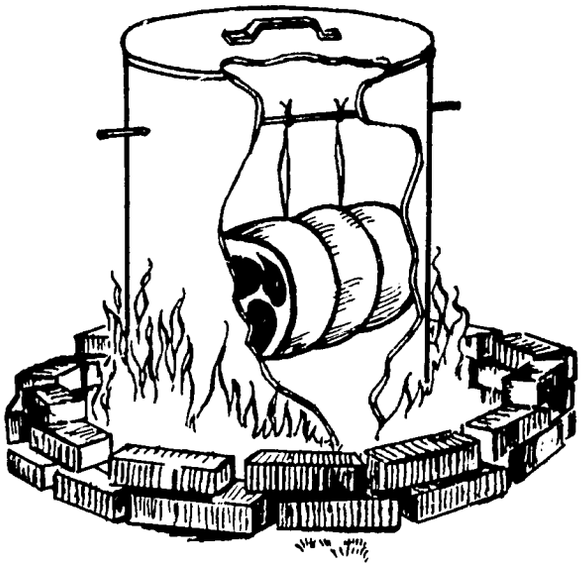
b. Have a large cooking pan and a tightly-fitting lid. You can use a lard can, an oil drum, or a garbage can. Punch a hole on two sides of the can several inches below the rim.

3. How to use the roaster:
   a. Wrap fine wire around the meat or run a wire through the center of the meat, leaving ends long enough to make a strong loop.
   b. Run a small metal rod or a piece of wire through one hole in the can. Slip wire loops over the rod and then run the other end through the other hole in the can. This leaves the meat hanging in the can.
   c. Put the lid on the can.
   d. Place the can in the middle of the brick circle and build a fire around the can.
   e. The meat will cook quickly.

I. Iceless Cooler

A modern refrigerator is very desirable but if this cannot be obtained an iceless cooler may be used as a substitute.

1. Many foods can be kept longer if they are stored in a cool place. These foods include fresh fruits and vegetables, milk, meat, eggs, fish, butter.



Outdoor Roaster

2. To build an iceless cooler:
   a. The base of the cooler is a large shallow pan to hold water. It can be made of metal or earthenware. (A part of an oil drum cut 5 or 6 inches deep will work well.)
   b. The basket is made of bamboo or other slender wood or twigs woven together loosely. It is about 60 x 70 c. A lid with handles, is made to fit the basket.
   c. Place four bricks or stones in the base. The purpose of these stones is to keep the basket out of the water when in use.
   d. A cover of soft burlap is sewed around the sides of the basket. This cover must be long enough to reach into water when the basket is placed on the bricks or stones.
   e. A loose fitting cover of burlap is placed over the lid of the basket. This cover should be wet when the cooler is first used and after that it should be re-wet often.
3. To use and care for the cooler:
   a. Clean the cooler often and place it in the sunshine.
   b. Wash the cover every week.
   c. When the food is inside the basket, place the basket on the bricks or stones so that it does not touch the water. However, the cloth on the basket should reach into the water. The water will soak into the cloth until all of the cloth is wet; as the cloth dries, the inside of the basket becomes cooler.
4. The cooler will work better if it is placed in the shade outside the building, so that the wind can blow on it.

J. Sinks or Other Utensils for Water

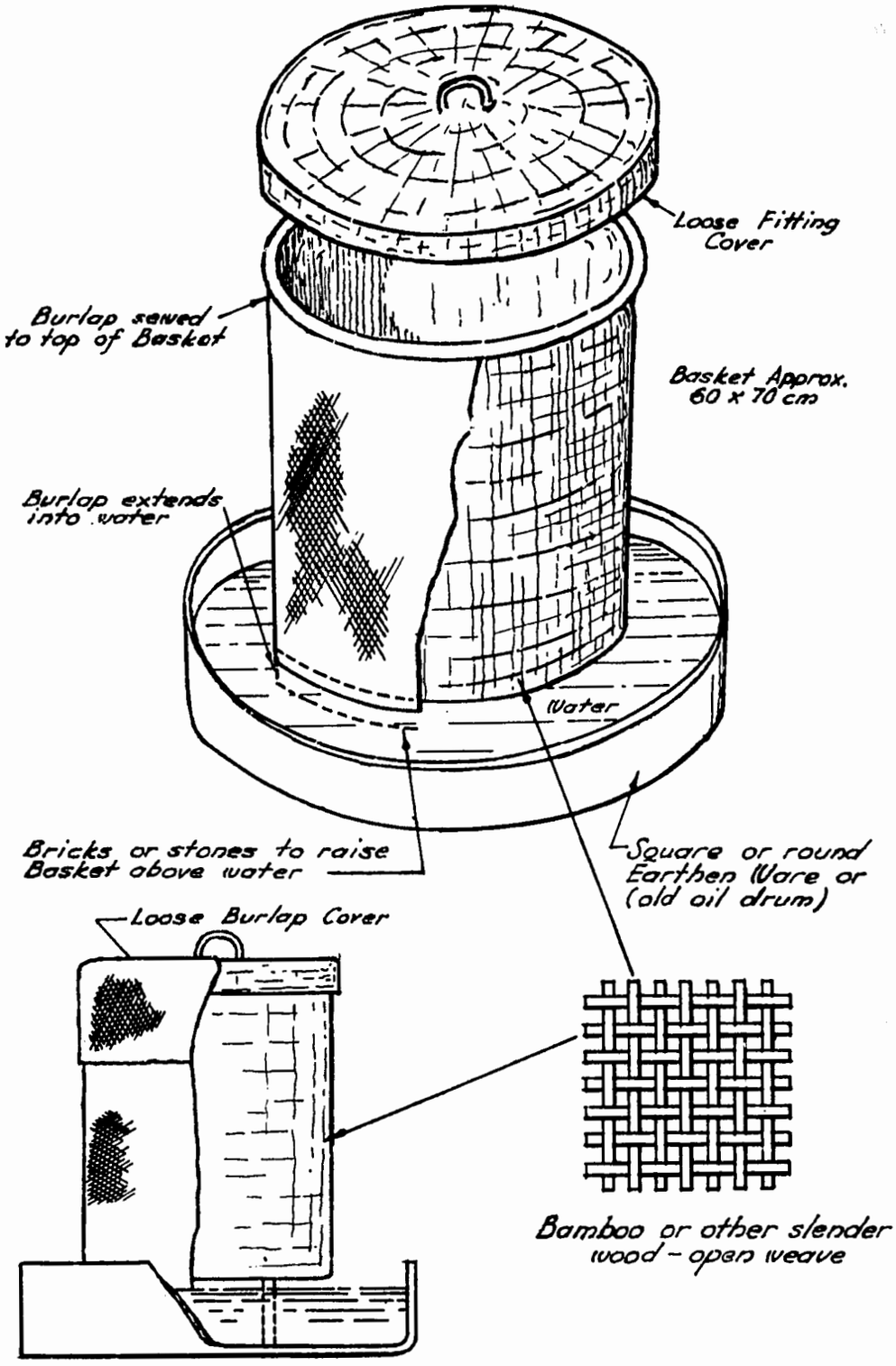
1. A sink can have one, two, or three basins, and can be made either with or without a drainboard. It can be made of clay, cement, metal or enamel. Height of a sink should be comfortable to work at while standing. The sink should be set into a sturdy base, and preferably near a pump. Try to have a pipe leading from the sink to an outside container or to another pipe that takes water away.
2. Other utensils for water could be tubs, clean oil cans, clean kerosene cans, earthen jars or bowls, or clean garbage cans. These cans also should be at a height comfortable for working in a standing position.

K. Cook's Table

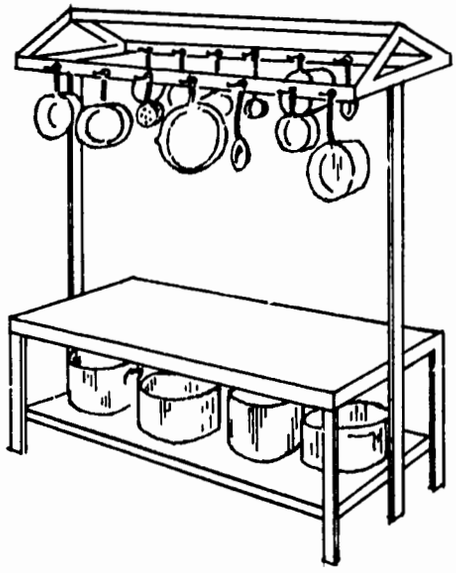
1. A cook's table should be strong and sturdy, and can be made of wood, metal or bamboo. It should be built at a good working height,
2. A shelf under the table to hold pots, pans and other equipment needed at the table is useful. A rack for hanging pots and pans can also be built above the table surface.

Small Equipment

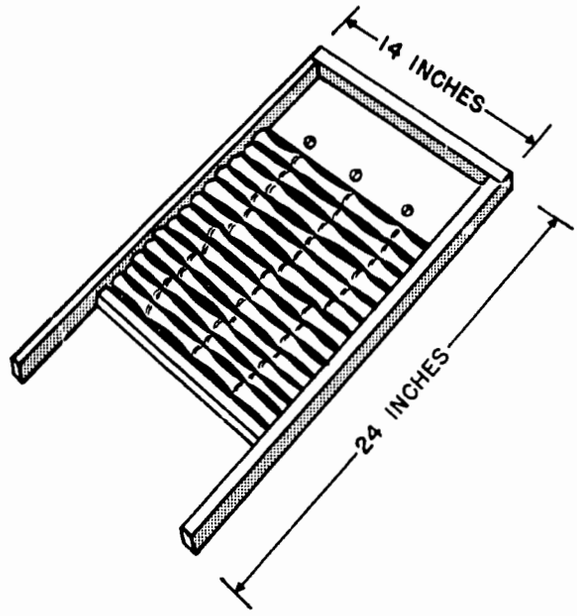
Not all the equipment listed in the following pages is essential. However, it is all useful and can make work more efficient. The article, how it may be made and its uses are given.



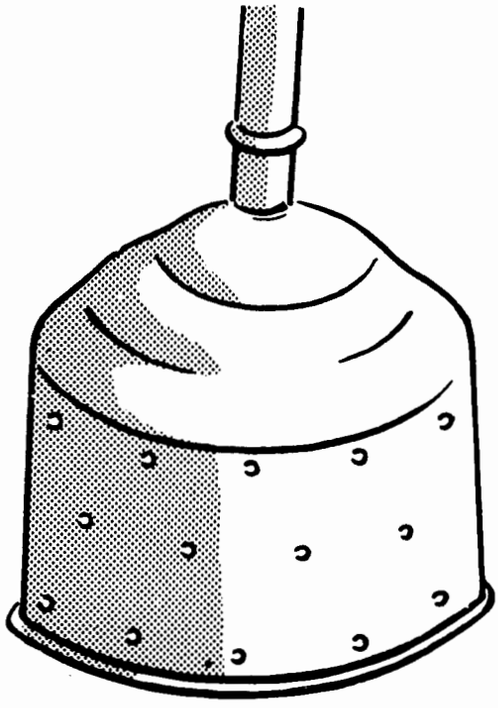
Iceless Cooler



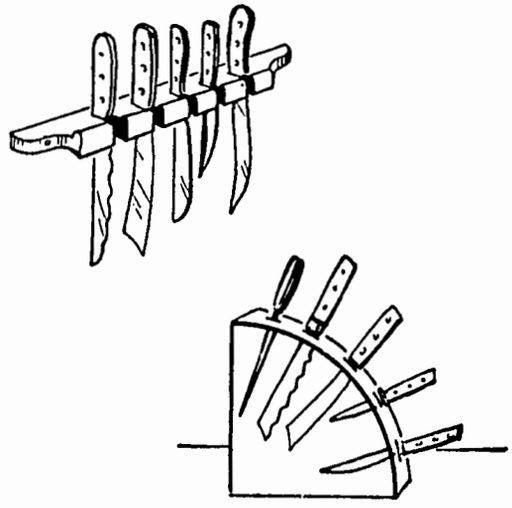
Cook's Table With Utensils Within Easy Reach



Washboard made from Bamboo.



Suction Type Washer



Racks to Help Keep Knife Blades Sharp, and to Protect Workers

SMALL EQUIPMENT LIST

Article	Description	Uses
Biscuit or cookie cutter	May be made from a small tin can with top cut out.	For cutting biscuit or cookies.
Boards - cutting (chopping) * Pastry	Made from a hardwood board about 20" by 24".	Chopping meat or vegetables. If covered with a heavy clean cloth may be used to roll out dough.
Bowls, mixing	Made of tin, aluminum, pottery, etc.	For mixing all types of food.
Can Opener	Made in metal, commercially.	For opening cans.
Cooking forks or spoons	Made from stainless steel, aluminum, tin or wood.	For stirring, mixing and serving.
Double Boilers	May be made from two cans - one smaller than the other. Should have a cover.	Used for cooking sauces or custards or other foods which need to be cooked very slowly. Bottom can is filled with water and smaller can containing food is placed inside.
Food chopper or cleaver	Must be bought commercially.	For chopping meat, vegetables, etc.
Grater	Made from one long side of a can by punching holes of different sizes in can. Bind with small strips of wood.	For grating cheese, vegetables and spices. May also be used for grating soap for dishwashing or laundry.
Knives - short - long	Buy commercially. Should be kept sharp.	Slicing, peeling, chopping and slicing foods.
Knife rack	Made from wood and attach to wall or other convenient place.	To hold knives.
Measuring cups	Made from aluminum, tin, glass, gourds.	For measuring ingredients for cooking.
Measuring spoons	Buy commercially in metal or wood.	For measuring salt, pepper, spices, sugar and flavoring.
Ladles and Scoops	May be made of metal, wood, or from gourds.	Used for taking food such as rice, flour, sugar and beans out of cans. Also for serving foods.
Pans - Baking pans Bread pans, Sheet pans	Pans may be made of stainless steel, aluminum or tin. A clean oil can may be cut lengthwise to make these pans.	Used for baking foods of various kinds such as cakes, bread, casseroles, cookies, etc.
P[illegible]le	A long, flat board four or five inches in width and tapered across one end.	Used for stirring large containers of food and for removing foods from oven.

Article	Description	Uses
Potato masher	Best to buy commercially.	Used for mashing potatoes, squash and some other vegetables or fruits.
Pots, cooking	Pots can be made of aluminun cast iron or clay. Some are in use made from oil can cut in half. The number and size depends on the amount and kind of food prepared. Should have lids and handles. A lip makes pouring easier. Should not be too heavy to lift when full.	Used to prepare all foods which require boiling.
Pot holders	Sew together several thicknesses of cloth and bind the edges. Should be about six inches square.	Used in handling hot pots, pans, spoons and other utensils.
Rolling pin	Made from wood, glass or china. A clean smooth bottle makes a good rolling pin.	To roll out noodles, pastry, etc.
Rotary beater or wire whip	Must be bought commercially.	Beating eggs and mixing powdered milk with water.
Sieve and sifter	Made by punching holes in a large tin can or buy commercially.	Serves to wash fruits and vegetables. Also to sift flour, sugar, etc.
Vegetable brush	May be made of stiff palm leaves or similar material, attached to a small board.	Scrubbing vegetables.
Water cans	From oil drums, pottery jars, kerosene cans, glass jars or tubs.	For use in holding water for the kitchen.
Eating Utensils		
Dishes, cups or glasses	Can be made from plastic, pottery, glass or tin cans.	For drinking liquid foods.
Plates	From plastic, china, tin, or pottery.	For holding foods served which are not liquid.
Soup bowls	May be made of plastic, tin or pottery.	For serving soups, cereals and certain desserts.
Silverware		
Forks, knives, spoons	May be made of stainless steel, aluminum or tin. Should have one of each for each person served.	For eating foods served.
Chopsticks	Made of wood, plastic or metal.	For eating foods served.

Article Cleaning and General Equipment	Description (How to Make)	Uses
Brooms	Made of tough grass or palm leaves tied firmly to a wooden or bamboo pole.	Use for sweeping.
Cans - garbage	Kerosene or oil cans may be used. Should have a tightly fitting cover and handles on each side and on the lid. If placed on rollers can be moved easily.	For storing garbage before final disposal.
Dish baskets	May be made of wire or from tough woven grasses.	For washing and rinsing dishes.
Dish cloths	May be made of strong cotton cloth hemmed at edges.	For wiping dishes and other utensils.
Dish pans	Made of metal, plastic or pottery. An oil drum cut through the middle may be used.	For washing and rinsing dishes, glass ware, silver and cooking utensils.
Rubbing board	Can be made by splitting bamboo in half and nailing rows of bamboo to a wooden board.	Used for washing dish towels and other textiles. When cloth is rubbed against it, the dirt is loosened and can be washed away.
Scrub pail or bucket	Made of metal or pottery. An oil can with top cut off may be used.	For holding water and soap for washing floors and large equipment.
Suction type cleaner	Made of tin or other metal fastened to a handle. See illustration.	For sucking the dirt from textile material as it is washed.
Soap dish	A tin can with holes punched in it.	For holding soap.
Stools	May be made from a tree stump, a nail keg or a packing crate.	Some jobs, such as peeling vegetables may be done while sitting.
Trays	Made from plastic, wood, metal, woven bamboo or cane.	For serving foods.

Rules for arithmetic . . . rules for good eating.

QUANTITY RECIPES

(About 50 Portions)

EQUIVALENTS FOR WEIGHTS AND MEASURES

	Measures	*Weights*
3 teaspoons	1 tablespoon	1 ounce
2 tablespoons		1 ounce
4 tablespoons	¼ cup	2 ounces
8 tablespoons	½ cup	4 ounces
16 tablespoons	1 cup	8 ounces
2 cups	1 pint	16 ounces (1 pound)
2 pints	1 quart	2 pounds
4 quarts	1 gallon	8 pounds

Flour and nonfat dry milk: 1 cup = 4 ounces.

FLUID SKIM MILK

Yield: About 3¼ gallons (50 cups)

Amount	*Ingredients*
4 parts (about 3¼ gallons)	Water
1 part (about 3¼ quarts)	Nonfat dry milk

Boil water for at least 10 minutes. Cool, then measure.

Sprinkle milk on top of the water. Beat with a beater, wire whip or stir with a spoon or paddle until milk is blended with water and lumps are dissolved.

Use fluid milk for beverages, or for making stews, soups, sauces, etc.

FLAVORED FLUID SKIM MILK

Amount	*Ingredients*
About 3¼ gallons	Fluid skim milk (see recipe)
2 tablespoons	Cinnamon
2 tablespoons	Nutmeg
1 tablespoon	Salt
1 cup	Sugar

Add cinnamon, nutmeg, salt and sugar to the milk. Beat or stir until well blended.

Variations:

	Amount	*Ingredients*
1. Banana Milk	25	Bananas (mashed)
2. Mango Milk	25	Cooked Mangos (pulp)
3. Guava Milk	¾ quart	Guava pulp
4. Cardamon Anise Milk	20	Cardamon seeds (ground)
	20	Anise seeds (ground)
5. Molasses Milk	½ quart	Molasses
6. Vanilla Milk	2 beans or ¼ cup	Vanilla (large) or Vanilla flavoring
7. Syrup Milk	½ quart	Syrup (omit sugar)

COCOA

Amount	*Ingredients*
3½ gallons	Water
¾ quart	Cocoa
¾ quart	Sugar
2 teaspoons	Salt
3½ quarts	Nonfat dry milk

Boil water for at least 10 minutes. Cool, then measure.

Mix cocoa, sugar and salt.

Add part of the boiled water to the cocoa mixture to make a thin syrup. Heat for 10 to 15 minutes.

Put dry milk on top of the remaining cooled, boiled water. Beat with a beater, wire whip or stir with a spoon until milk is blended with water and lumps are dissolved.

Add cocoa mixture to the milk. Mix well.

Reheat. Beat or stir before serving.

FRUIT MILK DRINK

Amount	*Ingredients*
2 gallons	Water
½ gallon	Nonfat dry milk
1 gallon	Fruit pulp
1 cup	Sugar

Boil water for at least 10 minutes. Cool, then measure.

Sprinkle the milk on top of the water. Beat with a beater, wire whip or stir with a spoon until milk is blended with the water and lumps are dissolved.

Note: Prune, apple, peach or other fresh or dried fruit pulp may be used.

Thus hundreds of young children are served milk daily around the world.

Cereals

BOILED BULGUR WHEAT

Amount	*Ingredients*
2½ quarts	Bulgur (uncooked)
1¼ gallons	Cold water
1-2/3 tablespoons	Salt

Place water in container, add salt and bulgur wheat.

Cover and bring to a boil.

Reduce heat and simmer for 15 minutes.

MACARONI, NOODLES, SPAGHETTI

Amount	*Ingredients*
2 gallons	Water
2½ pounds	Macaroni
	or
3 pounds	Noodles
	or
2¾ pounds	Spaghetti
¼ cup	Salt

Heat water to boiling.

Stir macaroni, noodles or spaghetti into water. Add salt.

Cook for 14 to 16 minutes.

Drain. Rinse with pure water to remove excess starch.

May be served with cheese, meat balls, peas, beans or nuts.

CREAMY RICE WITH DRIED FRUIT

Amount	*Ingredients*
1 gallon	Fluid skim milk
1 quart	Uncooked rice
3 tablespoons	Salt
½ gallon	Mashed dried fruit
1 quart	Sugar

Heat milk over hot water.

Add rice and salt.

Stir in mashed dried fruit and sugar. Continue to cook until the rice is tender and the dried fruit is done.

PLAIN COOKED CEREAL

Amount	*Ingredients*
3 quarts	Corn meal (fine) Water (2½ gallons)
2½ quarts	Grits Water (2½ gallons)
2½ quarts	Rice Water (5 gallons)
4 quarts	Rolled oats Water (3 gallons)
3 quarts	Rolled wheat Water (2¼ gallons)
2½ quarts	Whole-wheat cereal Water (2¾ gallons)

These proportions will yield about ¾ cup of cooked cereal to a serving, and may be used as the basis for cereal and dried fruit puddings. Unless the lunchroom has mechanical means of stirring the cereal, however, it is best not to try to make up the 50 servings all at once. Instead, cook 2 batches of 25. Large double boilers are a good investment if cereal is to be prepared daily for a large group of children.

Fried cereal—Corn meal, grits, rolled oats, rolled wheat, and whole wheat may also be cooled, then sliced, and browned in a little fat. Serve with sirup, jelly, or preserves. When the cereals are to be molded, use less water in cooking. Pour into pans rinsed with cold water. Let set until cold and firm, slice, dust lightly with flour, and fry slowly until the crust is golden brown.

For variation, add some well-flavored cheese, finely diced or flaked, to the cereal before taking it off the fire.

Soups

AVOCADO SOUP

Amount	*Ingredients*
10	Diced Onions
2½ cups	Fat or oil
1-1/3 cups	Flour
2 gallons	Fluid Skim Milk
1½ tablespoons	Salt
10	Avocados

Cook onions in fat until transparent but not brown.

Add flour and blend until smooth.

Add milk and cook until slightly thick, stirring constantly.

Add salt to taste.

Simmer for 10 minutes.

Just before serving add mashed avocado.

BEAN SOUP

Amount	*Ingredients*
1¾ quarts	Dry beans or peas, any variety
½ gallon	Boiling water
3¼ gallons	Cold water
2½ pounds	Meat and bone
3½ cups	Chopped onion
1 tablespoon	Sugar
¼ cup	Salt
1¼ cups	Flour
1½ cups	Cold water

Sort and wash beans.

Add beans to boiling water and boil for 2 minutes. Remove from heat, cover and let stand for 1 hour. Then let the beans soak overnight.

Add 3¼ gallons water, meat and bone, sugar and salt. Cover and cook for 3 hours.

Blend flour and 1½ cups cold water, add to soup. Simmer, stirring often, for about 10 minutes or until soup thickens slightly.

BEAN OR PEA CHOWDER

Amount	*Ingredients*
½ gallon	Dry peas or beans
2 gallons	Water
1-2/3 tablespoons	Salt
½ gallon	Diced potato
10	Chopped onions
3 tablespoons	Flour
¾ cups	Fat
½ gallon	Cooked tomatoes
1 gallon	Fluid Skim Milk
10	Green peppers (Shredded)

Wash and sort peas or beans.

Add water and boil 5 minutes.

Remove from heat, cover and let soak two hours.

Add salt, cover and boil slowly for one hour or until peas and beans are tender.

Add potato and onion and cook 30 minutes.

Add flour and cook a few minutes longer.

Stir in milk and reheat quickly.

BULGUR WHEAT VEGETABLE SOUP

Amount	*Ingredients*
3 gallons	Soup stock
10	Large onions
2½ quarts	Bulgur Wheat (cooked)
	Salt & pepper to taste

Heat soup stock to boiling.

Add onions and any other desired vegetables. Cook until tender.

Add cooked bulgur wheat.

CHICKEN BULGUR SOUP

Amount	*Ingredients*
2½ gallons	Chicken or meat broth
1 quart	Chopped onion
½ gallon	Chopped vegetables
¼ cup	Salt
½ quart	Bulgur Wheat
½ gallon	Diced chicken or other meat
1 cup	Flour

Heat broth to boiling.

Add onion and other vegetables.

Add bulgur.

Boil until bulgur and vegetables are tender.

Add cooked diced chicken or meat.

Simmer about 15 minutes.

Mix flour with a little cold water, add to soup and cooked until slightly thickened.

Rice or other cereal may be used instead of bulgur.

PEANUT SOUP

Amount	*Ingredients*
½ gallon	Non-fat dry milk
2 gallons	Water
¼ cup	Fat
¼ cup	Flour
¾ cup	Chopped onion
2 tablespoons	Salt
1¼ quarts	Ground peanuts

Sprinkle milk on top of water and beat or stir until blended.

Melt fat and add flour, stirring until smooth.

Add to milk and cook, stirring over low heat until slightly thickened.

Add onion and salt and blend part of the hot mixture with the peanuts.

Combine the rest of the mixture and serve hot.

ROLLED OATS (OR ROLLED WHEAT) AND POTATO SOUP

Amount	*Ingredients*
½ gallon	Rolled oats or rolled wheat
3 gallons	Water or fluid skim milk
1½ gallons	Potatoes, diced
12	Onions, chopped
1½ cups	Fat
½ gallon	Tomatoes, cooked and mashed
6 tablespoons	Salt

Sprinkle the rolled oats or the rolled wheat slowly into the boiling water. Boil 5 minutes.

Add the diced potatoes and cook until tender.

Brown the onions in the fat and add with the tomatoes and salt to the soup.

Cook for about 10 minutes and serve.

EGGPLANT SOUP

Amount	*Ingredients*
2½ pounds	Beef, chicken, lamb, goat or pork
10	Onions
1¼ cups	Fat
½ teaspoon	Pepper
4 gallons	Water
10	Eggplants
¾ quart	Flour
¼ cup	Salt

Cut meat into small pieces.

Add seasoning and cook in fat until meat is browned.

Add water and simmer until meat is tender.

Peel eggplant, cut into pieces about 2 inches long, one inch wide and ¼ inch thick.

Roll each piece in flour and then in slightly beaten egg. Fry in oil.

When soup is ready to serve, add the eggplant.

FISH CHOWDER

Amount	*Ingredients*
1 gallon	Non-fat dry milk
2 gallons	Water (boiled & cooled)
5 pounds	Fish (uncooked)
1 quart	Chopped onions
1 gallon	Diced potatoes
	Salt to taste

Sprinkle dry milk on top of the water. Beat with a beater, wire whip or spoon until milk is blended.

Skin fish, remove bones and cut into small pieces.

Combine onion, potatoes and fish and add to the milk.

Cook until vegetables and fish are tender.

Salt to taste.

VEGETABLE SOUP (WITHOUT MEAT STOCK)

Amount	*Ingredients*
½ gallon	Carrots, diced
1 quart	Turnips, diced
½ gallon	Potatoes, diced
1 gallon	Tomatoes
2 gallons	Water
½ gallon	Onions, sliced or chopped
½ quart	Salt pork drippings or other fat
1 gallon	Cabbage, chopped
	Salt, to taste

Mix all the vegetables except the onions and cabbage with the water.

Boil gently until the vegetables are nearly tender.

Brown onions in the fat.

Add the onions, fat and cabbage to the other veaetables. Cook a little longer.

Serve before the vegetables are soft. Season to taste.

Other vegetables may be substituted for those listed.

TOMATO SOUP

Amount	*Ingredients*
¾ gallon	Cooked tomatoes
¼ cup	Sugar
3 cups	Chopped celery or other vegetable
1 ⅓ cups	Chopped onion
¾ teaspoon	Baking Soda, if available
1½ cups	Fat or oil
3 cups	Flour, sifted or stirred
¼ cup	Salt
2 gallons	Fluid skim milk, hot

Combine tomatoes, sugar, celery and onion; simmer covered for 15 minutes.

Add soda.

Melt fat; add flour and salt.

Stir into tomato mixture. Cook until thickened, stirring constantly.

Stir tomato mixture into the hot milk. Reheat if necessary. Serve soon after making.

VEGETABLE SOUP

Amount	*Ingredients*
2 gallons	Meat or fowl broth
2¼ quarts	Cooked tomatoes
1 cup	Turnips, diced
¾ quart	Carrots, diced
2½ quarts	Potatoes, diced
1½ cups	Celery, diced or other vegetable
1½ cups	Cabbage, chopped
1⅓ cups	Onion, chopped
1 cup	Uncooked rice
¼ cup	Salt
1 teaspoon	Pepper

Combine broth, vegetables, rice and seasonings.

Cook for one hour.

Note: rolled wheat (wheat flakes) may be used in place of rice.

SCALLOPED CHEESE

Amount	*Ingredients*
6¼ quarts	Fluid skim milk
1¼ gallons	Dried bread cut in pieces
2 pounds	Cheese (chopped or grated)
1/3 cup	Salt
3¾ tablespoons	Fat
15	Eggs, beaten

Heat milk and pour over bread.

Add cheese and stir until melted. Cool.

Add salt, melted fat and beaten eggs.

Mix well and pour into greased baking pans.

Bake slowly until done.

Note: May be served with jelly or marmalade.

CEREAL AND FISH

Amount	*Ingredients*
2 gallons	Cereal, cooked (such as hot grits or corn meal)
2 pounds	Fish, chopped fine
1 gallon	Fluid skim milk
½ gallon	Fat
½ cup	Flour
½ cup	Salt, if needed

Place a layer of the hot cereal in a greased pan, then a layer of the fish.

Repeat these alternating layers until all the cereal and fish are used.

Heat the milk until it is very hot but not boiling.

Blend the melted fat with the flour (and with the salt if needed). Add this mixture to the hot milk and stir over low heat until thickened.

Pour this sauce over the mixture of fish and cereal layers. Bake it in a moderate oven until heated through.

Variations: Either dried or fresh fish may be used. If salted fish is used, reduce the quantity of fish and omit the salt—unless it is possible to soak out most of the salt from the fish.

CEREAL PIE WITH FRESH OR CURED MEAT

Amount	*Ingredients*
2 gallons	Cereal, cooked (corn meal or whole wheat cereal)
1 quart	Onions, chopped
1 cup	Fat
1 gallon	Tomatoes
1 gallon	Cooked chopped meat, fresh or cured
	Salt, if needed

Cook the onions in the fat until lightly browned.

Heat the tomatoes to boiling, add the onions and meat, and salt if necessary.

If fresh pork, beef, or lamb is used, about ¼ cup of salt will be needed. When ham or cured shoulder is used, salt to taste.

Put a layer of the cooked cereal in a large, greased baking pan, then a layer of the meat mixture, and cover with the rest of the cereal.

Bake in a moderate oven until brown.

MEAT STEW

Amount	*Ingredients*
8½ pounds	Boneless meat, cut in 1-inch pieces
1 cup	Fat or oil
2¼ gallons	Water
1 quart	Flour
¼ cup	Salt
½ quart	Onion, diced
3¼ quarts	Potatoes, diced
1¾ gallons	Other vegetables

Brown meat in fat or oil.

Add water and simmer until meat is tender.

Add vegetables and simmer until tender.

Mix flour and salt with a little water. Add to meat mixture. Simmer until stew thickens.

Note: Suitable meats are lamb, goat, chicken, beef, deer, fish or other meat.

CHICKEN-VEGETABLE DISH

Amount	*Ingredients*
4 to 6 pounds	Any lean meat, cut in 2-inch strips
½ cup	Fat or oil
1¼ gallons	Water and bean sprout liquid
2½ quarts	Celery or other vegetable cut in 1-inch strips
¾ quart	Onions, sliced
¾ quart	Bean sprouts or shredded cabbage or beans
2 tablespoons	Salt
½ teaspoon	Pepper
¼ cup	Sugar
1½ cups	Flour
2/3 cup	Water, cold (to mix with flour)
1 cup	Soy sauce (optional)

Brown meat in fat or oil.

Add water and liquid from bean sprouts and simmer for 30 minutes.

Add all vegetables, salt, pepper and sugar.

Blend flour with the 2/3 cup water and stir into the mixture.

Simmer for 30 minutes, stirring often.

Add soy sauce, if desired.

Serve with rice or noodles.

Note: Meat may be pork, veal, chicken, goat, lamb, deer or rabbit.

BULGUR WHEAT PILAF

Amount	*Ingredients*
2½ quarts	Bulgur Wheat
½ quart	Fat
1 gallon	Chopped onion
1½ gallons	Meat broth
5 tablespoons	Salt

Melt fat, add Bulgur Wheat and onion. Cook until golden brown, stirring constantly.

Add broth and salt.

Cover tightly and simmer for 15 minutes.

MEAT AND NOODLES OR RICE

Amount	*Ingredients*
8½ pounds	Ground or chopped meat
2½ cups	Chopped onion
1 cup	Fat or oil
1¼ cups	Flour, sifted or stirred
¼ cup	Salt
3½ quarts	Water
¾ gallon	Noodles, cooked

Brown meat and onion in fat or oil. Cook over low heat.

Stir flour and salt into meat mixture. Add water and cook until thickened, stirring occasionally.

Serve over noodles, rice, cornbread, pancakes.

Note: Suitable meats are beef, lamb, goat, chicken, deer or fish.

CREAMED MIXED VEGETABLES WITH EGG OR CHEESE

Amount	*Ingredients*
1½ quarts	Turnips (sliced or diced)
1½ quarts	Carrots (sliced or diced)
1 gallon	Potatoes (diced)
1½ gallons	Water
1 cup	Flour
1 cup	Fat
¾ gallon	Fluid skim milk
3 tablespoons	Salt
1 gallon	Chopped cabbage
25	Eggs (hard boiled)
or	or
3 pounds	Chopped or grated cheese

Boil turnips, carrots and potatoes in the water, in a covered pan until vegetables are tender.

Melt fat and blend flour.

Add milk and cook, stirring constantly, until slightly thick.

Add the cooked vegetables, salt and cabbage. Simmer 10 minutes, stirring constantly.

Add chopped hard boiled eggs or the cheese. If cheese is used, stir until melted.

An excellent stove made by village workers from local materials is a boon to this chef.

BOILING FRESH VEGETABLES

1. Prepare vegetables according to the directions given in the following table.

2. It is desirable to wash vegetables before cooking them. Leafy vegetables should be washed several times, lifting them out of the water each time.

3. Cook in lots ***no larger than 10 pounds*** of prepared raw vegetable. Boil vegetables until just tender—no longer than necessary. For a given vegetable, cooking time will differ with variety and age of the vegetable, its size, or the size pieces into which it is cut. See timetable for approximate cooking time.

4. Drain and add 8 ounces (1 cup) of butter or margarine for each 10 pounds of vegetable.

5. A 10-pound lot of prepared raw vegetable makes about ***50 3-ounce*** portions when cooked, drained and seasoned.

CRACKED BULGUR WHEAT WITH VEGETABLES

Amount	*Ingredients*
3-2/3 cups	Cracked bulgur wheat
1 tablespoon	Salt
1½ gallons	Boiling water
About 7 medium onions or 1¼ quarts	Chopped onion
About 10 peppers or 1 quart	Chopped green pepper (if available)
3½ cups	Chopped celery (if available)
1½ cups	Fat or oil
2½ gallons	Cooked tomatoes
½ cup	Sugar
3 tablespoons	Salt

Add wheat and salt to boiling water. Stir and cover tightly.

Cook on low heat about 20 minutes.

Remove from heat and let stand covered for 5 to 10 minutes.

Cook the onion, green pepper, and celery in the fat.

Add tomatoes, cooked vegetables, salt, and sugar to the wheat.

Cook slowly until thick.

TIMETABLE FOR BOILING FRESH VEGETABLES

Vegetable	Preparation	For 10-pound lots of vegetable		Approximate Cooking Time (minutes)
		Boiling Water	Salt	
Beans, lima	Shell. (If possible, scald pods to make shelling easier.)	2½ qts.	1 tbsp.	20 to 25
Beans, snap or wax	Trim ends and remove strings. Cut or break beans into 1-inch pieces.	2½ qts.	1 tbsp.	30 to 40
Beets	Remove tops, leaving 2-inch stems on beets. Do not peel or remove root.	To cover	None	60 to 90
Broccoli	Cut off tough stalk ends. Soak in salted water for 30 minutes if insects are present. Drain. Peel stalks. Cut broccoli lengthwise, if thick, to speed cooking.	3 qts.	1 tbsp.	10 to 20
Cabbage, coarsely shredded	Remove wilted outside leaves. Quarter ond core cabbage. Shred.	1½ gals.	2 tbsp.	10 to 15
Carrots	Scrape or pare. Slice, if desired.	3 qts.	1 tbsp.	Sliced, 15-20 Whole, 20-30
Cauliflower	Remove outer leaves and stalks. Break into flowerets. Soak in salted water for 30 minutes if insects are present. Drain.	1½ gals.	2 tbsp.	15 to 20
Celery	Trim. Cut into 1-inch pieces.	1 gal.	1 tbsp.	15 to 20
Chard, mustard and turnip greens	Sort. Cut off tough stems. Wash several times, lifting them out of the water each time.	Only water clinging to leaves.	1 tbsp.	15 to 25
Collards	Sort and trim. Strip leaves from coarse stems. Wash several times, lifting out of water each time. Stir occasionally while cooking.	1 gal.	1½ tbsp.	20 to 35
Corn on cob	Husk. Remove silks. Do not allow corn to stand in water.	1¼ gal. or To cover	1½ tbsp.	10 to 15
Kale	Sort. Strip leaves from coarse stems. Wash several times, lifting out of water each time. Stir occasionally while cooking.	1 gal.	1½ tbsp.	25 to 45
Onions	Peel. Quarter if large.	1½ gal.	2 tbsp.	20 to 35
Parsnips	Pare. Quarter lengthwise and cut in 3-inch pieces.	1¼ gal.	1½ tbsp.	20 to 30
Potatoes	Cut large potatoes to serving size. Peel and remove eyes if for mashing.	1¼ gal.	1½ tbsp.	30 to 50

TIMETABLE FOR BOILING FRESH VEGETABLES (cont.)

Vegetable	Preparation	For 10-pound lots of vegetable		Approximate Cooking Time (minutes)
		Boiling Water	Salt	
Rutabagas	Pare. Cut into 1-inch cubes.	3 qts.	1 tbsp.	20 to 30
Spinach	Sort and trim. Cut off coarse stems and roots. Wash several times, lifting out of water each time.	Only water clinging to leaves	1 tbsp.	10 to 20
Squash, Hubbard	If peel is hard and tough, soften it by steaming or boiling whole squash for 10 minutes. Cut; remove seeds, fiber and peel. Cut squash into pieces.	1¼ gal.	1½ tbsp.	15 to 20
Squash, summer	Trim. Cut into 1-inch pieces.	2 qts.	2 tsp.	10 to 20
Sweet potatoes	Select potatoes of uniform size.	1¼ gal.	None	35 to 50
Turnips	Pare. Cut into 1-inch cubes.	3 qts.	None	15 to 20
Green peas or chick peas	Shell. (If possible, scald pods to make shelling easier.)	2½ qts.	1 tbsp.	10 to 20

COOKING DRY BEANS AND PEAS

50 portions.

Ingredients	Amount (uncooked)	Water Needed	Cooking Time	Amount (cooked)
Blackeye peas and cowpeas cowpeas	3 qts.	2 gal.	30 min.	2 gal.
Great Northern beans	2¾ qts.	1¾ gal.	1 to 1½ hrs.	1¾ gal.
Kidney beans	2 qts.	3 gal.	1 to 1½ hrs.	1 gal.
Lima beans, large	2½ qts.	2 gal.	45 min.	1½ gal.
Lima beans, small	2¾ qts.	1¾ gal.	1 to 1½ hrs.	1½ gal.
Pea beans (Navy beans or soybeans)	.2½ qts.	1½ gal.	1½ to 2½ hrs.	1½ gal.
Pinto beans.	3 qts.	1¾ gal.	2 hrs.	1½ gal.

1. Sort and wash beans or peas.

2. Add water to beans or peas and let soak overnight.

3. Add 2 tablespoons of salt for each gallon of water used, if desired.

4. Bring to boiling and cook until tender. See table above for cooking time.

BISCUITS

Amount	*Ingredients*
1 gallon	Flour (sifted)
½ cup	Baking powder
2 tablespoons	Salt
2 cups	Fat
1½ to 2 quarts	Water or fluid milk

Drop Biscuits

Sift the flour, baking powder, and salt together. Cut in the fat. Add the liquid slowly, stirring from the center until a soft dough is formed. Drop from a spoon onto a greased baking sheet and bake in a hot oven for about 15 minutes or until lightly browned.

Rolled biscuits

Mix as above. Then when a soft dough is formed, toss one-half of the dough at a time on a lightly floured board. Knead for a few seconds, until smooth, then roll about ½ inch thick. Cut into round biscuits or into squares. Put these on a greased baking sheet and bake in a hot oven for about 15 minutes.

Rolled biscuits may also be baked on top of the stove in a frying pan. To do this, melt fat in a hot frying pan and place the biscuits in it about an inch apart. Brown slowly. Then turn and brown on the other side. Keep the heat low so the biscuits do not scorch.

WHOLE-WHEAT DROP BISCUITS

Amount	*Ingredients*
4½ quarts	Whole-wheat flour
½ cup	Baking powder
2 tablespoons	Salt
1½ to 2 cups	Fat
1½ quarts	Water or milk

Mix the dry ingredients together and cut in the fat. Make a well in the mixture.

Add the liquid slowly, stirring until a soft dough is formed.

As whole-wheat flours vary, the amount of liquid needed will vary also; increase liquid if necessary to make a soft dough.

Drop the dough by spoonfuls on lightly greased baking pans.

Bake in a hot oven for about 15 minutes, or until lightly browned.

Variation: Whole-wheat dumpling. Drop batter into hot broth and cook until dumplings are done.

CORNBREAD

Amount	*Ingredients*
1 quart	Water
1 cup	Nonfat dry milk
1½ quarts	Cornmeal
¾ quart	Flour, sifted or stirred
¼ cup	Baking powder
½ cup	Sugar, if desired
1-1/3 tablespoons	Salt
3	Eggs, beaten
1 cup	Fat (melted), or oil

Sift or stir together the dry milk, cornmeal, flour, baking powder, sugar and salt.

Blend together eggs and water and add to the dry mixture. Add fat. Stir just enough to blend.

Pour into greased baking pans.

Bake in a hot oven (425° F.) for 25 minutes, or until bread is done.

Serve with butter or margarine and honey, molasses or syrup.

Note: Cornbread may also be served with vegetables, meats, salads or as a dessert.

CORNBREAD (No. 2)

Amount	*Ingredients*
1 gallon	Cornmeal
2½ tablespoons	Salt
½ cup	Sugar
¾ gallon	Water or fluid skim milk
1 cup	Fat
1 cup	Baking powder
8	Eggs (well beaten)

Mix the corn meal, baking powder, salt, and sugar.

Heat one-half of the liquid to the boiling point and pour over the dry ingredients.

Add the fat, remaining liquid, and eggs. Mix well.

Bake the mixture in hot, well-greased pans for 20 to 25 minutes.

To bake on top of the stove for skillet cornbread, pour the mixture inch deep into well-greased frying pans. Cook slowly over direct heat until brown, then turn and brown on the other side, adding extra fat.

If eggs are omitted, increase the baking powder by 4 teaspoons and increase the liquid 1½ cups.

CORNBREAD PANCAKES

Use the recipe for cornbread.

Drop spoonfulls of the batter onto a hot skillet or griddle.

Fry to a golden brown on each side.

Note: Bulgar, oatmeal, rolled wheat or soy flour may be used in place of the cornmeal. Use 1-1/3 quarts water.

FRUIT BREAD

Amount	*Ingredients*
1/3 cup	Butter, margarine or other fat
1 cup	Liquid honey
½ cup	Sugar
8	Eggs
¾ quart	White flour, sifted or stirred
2 cups	Whole wheat flour
1½ tablespoons	Baking powder
1½ teaspoons	Salt
1½ teaspoons	Baking soda
1½ cups	Sour milk
1½ cups	Cooked dried fruit, coarsely chopped
1½ cups	Nuts, chopped
1½ teaspoons	Lemon or lime rind, grated

Mix together fat, honey and sugar.

Add eggs and stir until well blended and creamy.

Sift or stir together flour, whole wheat flour, baking powder, salt and soda.

Add 1/3 of the dry mixture to the creamy mixture. Mix well.

Add 1/3 of the sour milk (½ cup) to the creamy mixture. Stir until smooth.

Mix in 1/3 of the dry mixture, then 1/3 of the sour milk.

Repeat with the remaining 1/3 dry mixture and sour milk. Stir until the batter is smooth and free of lumps.

Stir in dried fruit, nuts and lemon rind.

Pour into greased loaf pans or in baking pans.

Bake in moderate oven (350°F.) for about 1 hour or until done.

Slice, if baked in loaf pans. Cut into squares if baked in baking pans.

Note: Bulgur wheat, rolled wheat or soy flour may be used in place of whole wheat flour.

Dried fruit may be prunes, raisins, apricots, peaches, pears or any other dried fruit.

Nuts may be peanuts, pecans or any other nuts.

ROLLED WHEAT (WHEAT FLAKES) ROLLS

Amount	*Ingredients*
¼ cup	Nonfat dry milk
2-2/3 cups	Water
½ quart	Rolled wheat (uncooked)
1½ packages	Active dry yeast
¾ cup	Water (lukewarm)
3	Eggs
½ cup	Fat or oil
¾ cup	Molasses
1½ tablespoons	Salt
¾ gallon	Flour, sifted or stirred

Sprinkle milk on top of the water. Beat with a beater or wire whip or stir with a spoon until milk is blended with water and lumps are dissolved.

Scald milk. Add to rolled wheat. Let stand 1 hour.

Add yeast to lukewarm water. Let stand 10 minutes, then stir.

Beat eggs slightly and mix into rolled wheat mixture.

Add fat, molasses, salt and yeast.

Save out 1 cup flour. Add rest of flour to rolled wheat mixture. Mix until dough is smooth and elastic and leaves sides of bowl. If dough is sticky add enough of the saved-out flour to make a soft dough.

Form dough into a smooth ball. Place in a greased bowl; grease top. Cover and let rise in a warm place. It should double its size in about 1 hour.

Punch dough down. Roll into a ball, cover and let stand for about 15 minutes.

Cut off 2-inch pieces of dough and shape into rolls. Place about 1 inch apart on lightly greased sheet pans. Let rise in a warm place until they double their size. (about 50 minutes)

Bake in hot oven (400°F.) for 20 to 25 minutes.

Note: Oatmeal may be used in place of rolled wheat.

NUT AND RICE LOAF

Amount	*Ingredients*
½ cup	Fat
¾ cup	Flour
1 quart	Tomato juice and pulp
1 quart	Chopped nuts
¾ gallon	Cooked rice
1 quart	Dry bread crumbs
1 quart	Chopped onions
½ cup	Celery (if available)
2 tablespoons	Salt

Melt fat, blend in flour, then tomato juice and pulp. Cook over low heat until thickened, stirring often.

Combine all ingredients, stir until well-blended.

Form into a loaf and pack tightly into a well-greased pan lined with paper. Bake in moderate oven for about one hour.

Remove from pan.

Serve hot or cold, sliced.

QUICK NUT BREAD

Amount	*Ingredients*
1½ quarts	Cornmeal
3¾ quarts	Flour
2½ cups	Sugar
3½ tablespoons	Baking powder
1½ tablespoons	Salt
1 cup	Fat
2½ cups	Molasses
½ quart	Fluid skim milk
2½ cups	Nuts

Mix the first four dry ingredients.

Melt fat, add salt, molasses and fluid skim milk.

Beat well.

Add nuts.

Shape in shallow loaves.

Bake in moderate oven until done.

ROLLED WHEAT (WHEAT FLAKES) PANCAKES

Amount	*Ingredients*
3¼ quarts	Rolled wheat, quick cooking
3¼ cups	Nonfat dry milk
2½ cups	Flour, sifted or stirred
1/3 cup	Baking powder
1½ tablespoons	Salt
2¼ cups	Fat
10	Eggs
1¼ quarts	Water

Mix together rolled wheat, dry milk, flour, baking powder and salt.

Cut or rub in fat.

Mix together eggs and water. Pour into rolled wheat mixture and blend well.

Drop batter from a spoon onto a hot, greased griddle. When the surface is covered with bubbles turn and brown on the other side.

Serve with vegetables or as a dessert with butter or margarine and molasses, syrup or honey.

YUCCA, BREADFRUIT OR POTATO FRITTERS

Amount	*Ingredients*
10 pounds	Vegetable
10	Eggs
10 teaspoons	Baking powder
10 teaspoons	Salt
	A few anise seeds
3 pounds	Fat

Boil and mash the vegetable.

Add the unbeaten eggs and remaining ingredients. If the dough is too soft to handle, add enough flour to make a soft ball.

Drop by spoonfuls into deep fat.

Serve hot alone or with syrup.

A raised hearth makes cooking easier . . . more sanitary.

CEREAL AND DRIED-FRUIT PUDDING

Amount	*Ingredients*
2 gallons	Cereal, hot cooked
1 gallon	Dried fruit, stewed
½ quart	Sugar
½ cup	Fat

Mix the cereal, fruit, sugar, and fat. Stir until well blended and serve.

CORN MEAL FRUIT PUDDING

Amount	*Ingredients*
½ gallon	Dates, prunes or other dried fruit
¾ gallon	Cornmeal
1½ gallons	Liquid (water and juice from fruit)
1½ tablespoons	Salt
1 quart	Sugar

Soak the washed fruit, drain and chop.

Mix the cornmeal with part of the liquid, cold.

Add the rest of the liquid, boiling hot.

Add salt and cook covered, over hot water for an hour.

Combine the fruit and the sugar. Stir until well-blended.

Note: May be served with warm fluid skim milk.

RAISIN BREAD PUDDING

Amount	*Ingredients*
1½ quarts	Raisins or other dried fruit
1¼ gallons	Fluid skim milk
1 gallon	Dry bread crumbs
8	Eggs (beaten)
½ quart	Sugar
2 teaspoons	Salt

Heat milk and add bread crumbs.

Add to this mixture the beaten eggs, sugar, salt and raisins or other dried fruit.

Pour into greased shallow pans and bake in moderate oven until lightly brown. (About 45 minutes.)

CORN GRITS PUDDING

Amount	*Ingredients*
1½ quarts	Corn grits
2¼ gallons	Warm water
3½ tablespoons	Salt
1 quart	Sugar
1½ quarts	Raisins or other dried fruit
1 gallon	Raw fruit, diced
2 teaspoons	Cinnamon

Stir the grits slowly into the warm liquid.

Add the salt and sugar, and cook over hot water for about 30 minutes. Add the raisins and fruit.

Cook until the fruit is tender and the pudding is thick.

Mix the cinnamon with a little water and stir into the pudding. This dessert is especially good served hot. If it is to be served cold, more liquid should be used in its preparation so will not be too thick.

If fresh fruit is not available, this pudding can be made with double the amount of dried fruit called for in the recipe.

DRIED FRUIT CONFECTION

Amount	*Ingredients*
¾ quart	Dried fruit
½ quart	Seedless raisins or dates
1 cup	Chopped nuts
½ teaspoon	Salt
½ cup	Sugar
	Coconut, graham cracker crumbs or cornflakes

Grind or finely chop dried fruit and raisins or dates.

Combine all ingredients and stir until well blended.

Press into a greased pan and chill. It is desirable to let it stand overnight.

Cut into 50 pieces and roll each piece in coconut, fine graham cracker crumbs or crushed cornflakes.

FRUIT CUP

Amount	*Ingredients*
10	Ripe bananas
10	Grapefruits
10	Oranges or tangerines
5	Papaya (cut in cubes)
2 cups	Sugar
1 cup	Lime or lemon juice
2½ tablespoons	Grated nutmeg
½ quart	Grated coconut

Prepare fruit in small pieces and combine.

To fruit mixture add sugar, lime or lemon juice and grated nutmeg.

Mix lightly and sprinkle with grated coconut. Serve.

ROLLED OATS OR WHEAT COOKIES

Amount	*Ingredients*
1½ quarts	Flour
2 tablespoons	Baking powder
1 tablespoon	Salt
2 teaspoons	Cinnamon
1 quart	Sugar
2 cups	Melted fat
1 quart	Raisins (or other dried fruit)
1 quart	Nuts
1½ quarts	Rolled oats or wheat
4	Eggs (beaten)
2 quarts	Fluid skim milk

Sift the flour, baking powder, salt, and cinnamon together.

Mix the sugar with the fat, dried fruit, nuts (if available) and rolled oats.

Put all of these ingredients together and add the eggs and the liquid.

Stir until well mixed.

Drop by rounded teaspoonfuls onto greased pans.

Bake in a moderately hot oven from 10 to 12 minutes or until lightly browned. Remove from the pan while hot.

STEAMED PUDDING

Amount	*Ingredients*
2½ cups	Sugar
3 quarts	Flour
1½ tablespoons	Salt
1/3 cup	Baking powder
2 cups	Fat
5	Eggs
1¼ quarts	Fluid skim milk

Sift or stir together the sugar, flour, salt and baking powder.

Cut in the fat until well mixed.

Beat eggs and add milk to them.

Combine the two mixtures.

Pour into buttered cans. Set these in a vessel containing a small amount of water, cover and steam until done.

Chocolate, dried fruit, cut into small pieces or nuts may be added.

STEWED DRIED FRUIT

Amount	*Ingredients*
¾ gallon	Dried fruit
1¼ gallons	Water
1½ teaspoons	Salt
2 cups	Sugar
1	Lemon, sliced (if desired)

Cut fruit into quarters if the pieces are too large to be eaten easily.

Soak fruit in water until plump, overnight if necessary.

Add salt and cook over low heat until fruit is tender; during the last few minutes of cooking add sugar and lemon slices.

Note: Fruit may be apricots, peaches, prunes or mixed fruit.

CUSTARD SAUCE

Amount	*Ingredients*
2 tablespoons	Cornstarch or flour, sifted or stirred
2 cups	Sugar
2 cups	Nonfat dry milk
½ gallon	Water
18 (1½ cups)	Egg yolks
2-2/3 tablespoons	Vanilla or the juice of a lemon

Mix cornstarch, sugar and dry milk together.

Add water to dry ingredients and blend well.

Cook over low heat 7 to 10 minutes, stirring constantly.

Beat egg yolks well.

Add some of the cooked mixture to egg yolks and blend. Stir egg mixture slowly into remaining cooked mixture. Cook over low heat until thickened, stirring constantly.

Remove from heat and add vanilla or lemon juice.

Stir sauce often as it cools.

Serve over fresh or dried fruit, custard or cake.

Variations:

Butterscotch Sauce

Use the recipe for Custard Sauce.

Use brown sugar in place of the white sugar.

Orange Sauce

Use the recipe for Custard Sauce.

Use ¼ cup orange juice and 1½ teaspoons orange rind in place of vanilla.

Chocolate Sauce

Use the recipe for Custard Sauce and add melted chocolate.

LEMON SAUCE

Amount	*Ingredients*
2½ cups	Sugar
2/3 cup	Cornstarch or flour, sifted or stirred
¼ teaspoon	Salt
1¼ quarts	Water, boiling
½ cup	Butter or margarine, fat or oil
2/3 cup	Lemon juice

Mix together sugar, cornstarch and salt.

Add boiling water slowly, stirring constantly.

Continue stirring and cook for 10 minutes or until clear and thickened.

Add butter or margarine and lemon juice.

Serve over rice, pancakes, sliced banana, cake and cornbread.

Variation: To make Peanut Sauce, use 1¼ cups chopped peanuts in place of the lemon juice.