

1974

EC74-958 Microwave Ovens

Ethel Diedrichsen

Follow this and additional works at: <http://digitalcommons.unl.edu/extensionhist>

Diedrichsen, Ethel, "EC74-958 Microwave Ovens" (1974). *Historical Materials from University of Nebraska-Lincoln Extension*. 4251.
<http://digitalcommons.unl.edu/extensionhist/4251>

This Article is brought to you for free and open access by the Extension at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Historical Materials from University of Nebraska-Lincoln Extension by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

AGRI Vert
S File
85
E7
74-958

EC 74-958

MICROWAVE OVENS

Ethel Diedrichsen
Extension Specialist (Food and Nutrition)

Microwave ovens are considered useful and practical cooking appliances at home and in commercial establishments. Home units are becoming more easily available and less expensive. A variety of models and increased publicity on microwave cooking have helped to widen the appeal to homemakers.

The microwave oven uses ultrahigh-frequency radio waves to produce heat. The waves are generated by a device called the magnetron tube located at the top of the oven. These waves pass back and forth rapidly, generating heat through the entire mass of food at once.

The waves are absorbed by the food. They pass through glass, plastic and paper and are reflected by metal. Only the food is heated; the oven walls and utensils in which the food is cooked remain cool except for conduction of heat from the food. Two or three separate interlocking shut-off switches are located in the oven door. These are safety devices to shut off the microwave energy whenever the door is opened.

The two commonly used frequencies approved by the Federal Communications Commission (FCC) for microwave ovens are 2450 and 915 megahertz (MHz). Both systems produce fast internal heating, but cooking times may vary. The 2450 MHz ovens have a shorter wavelength and are most successful with small, thin pieces of food. Larger pieces such as turkeys and roasts may be prepared in this oven by rotating the food at intervals during cooking. They are generally available in portable countertop units that plug into a 110-volt electric outlet for operation.

The 915 MHz ovens generate longer waves for deeper penetration and are ideal for thick foods. They are sometimes combined with conventional ovens which usually are plugged into a 220-volt electric outlet.

Most foods cook in a microwave oven in about one-fourth the time it takes for conventional cooking. Because cooking time varies with different ovens, you will not find general directions for using a microwave oven. Be sure to follow the manufacturer's directions that come with your oven. Minutes or sometimes seconds can be critical; so you may have to adapt your cooking skills for best results.

Foods that cook for less than five minutes will not have the usual browned appearance of conventionally cooked foods. Such foods can be browned separately or you may have a microwave browning element with your oven. A seasoned coating, cornflake crumbs, paprika, or powdered brown gravy mix can be used to enhance the color of small cuts of meat which appear grey and unappetizing.

To prepare your favorite recipes, select a similar food or recipe from the book of directions and use approximately the same time. You can check doneness by sight, by taste or by temperature. If you use a thermometer, remove the food, insert the thermometer and read the temperature when the food is outside the oven. Do not leave the thermometer in the food if it is returned to the oven for more cooking.

Advantages

Speed: Foods cook or thaw amazingly fast.

Convenience: Last-minute meal planning is possible. Foods can be reheated quickly for late comers. Especially suitable for singles, couples and retired persons.

Coolness: Utensils, oven and kitchen remain cool.

Ease of cleaning: Many foods can be frozen, thawed, cooked and served in the same dish, eliminating dirty dishes. Food spills do not burn on the oven wall and can be wiped clean with a damp cloth or paper towel.

Economy: Leftovers, often thrown away, can be saved and reheated. Food retains nutrients, natural juiciness and fresh taste. In general, the total cost of operation is less than for conventional cooking.

Foods that can be used effectively include:

- Prebrowned foods.

- Frozen precooked foods and leftovers.

- Canned and frozen convenience foods.

Fresh, canned and frozen vegetables and fruits.
Sauces and puddings.

Limitations

The microwave oven cannot replace a regular range.

Foods do not brown with short cooking.

One food or recipe is usually cooked at one time. When the load increases, extra time is required.

Certain foods cannot be prepared well:

Eggs in the shell.

Pancakes, waffles and other foods made from a batter.

Precoated and breaded foods intended to be crisp.

Souffles.

Pastries and yeast breads.

More cookies can be baked conventionally in less time.

Some utensils and containers cannot be used. These include foil and metal containers, some Corningware (R) styrenes, and melamine plastics. Dishes and plastics may be tested for use by placing them in a microwave oven with a small amount of water. If they feel hot after heating for 1 minute, do not use them in your oven.

Only a few microwave ovens will tolerate the use of metal in the oven and then only if the amount of food being cooked is much greater than the amount of metal used.

Persons who wear pacemakers are advised to avoid microwave ovens including those in restaurants and snack bars.

New Features

Recent developments include ceramic browning units, separate cooking utensils designed expressly for microwave ovens that brown, sear and fry foods.

The automatic defrosting device has a timer which alternately turns the oven off and on for definite periods of time. This interrupted cooking cycle makes it easier to defrost frozen foods. It also produces a lower temperature more suitable for cooking less tender cuts of meat, for simmering soups and sauces and for making stews.

Ovens have a variety of safety features which include an indicator

light that tells when the oven is operating and two or three separate interlock shut-off switches in the oven door.

Precautions and Recommendations

The owner of a microwave oven can assure proper operation of the equipment by following these recommendations:

- Learn to operate oven according to manufacturer's instructions.

- Keep oven clean, especially around door seal.

- Do not operate oven while empty.

- Do not tamper with the mechanism.

- If door interlock fails, call competent serviceman.