

6-1-1980

Selecting a Microwave Oven

Suzanne Badenhop

Badenhop, Suzanne, "Selecting a Microwave Oven" (1980). *Historical Documents of the Purdue Cooperative Extension Service*. Paper 904.
<http://docs.lib.purdue.edu/agext/904>

For current publications, please contact the Education Store: <https://mdc.itap.purdue.edu/>

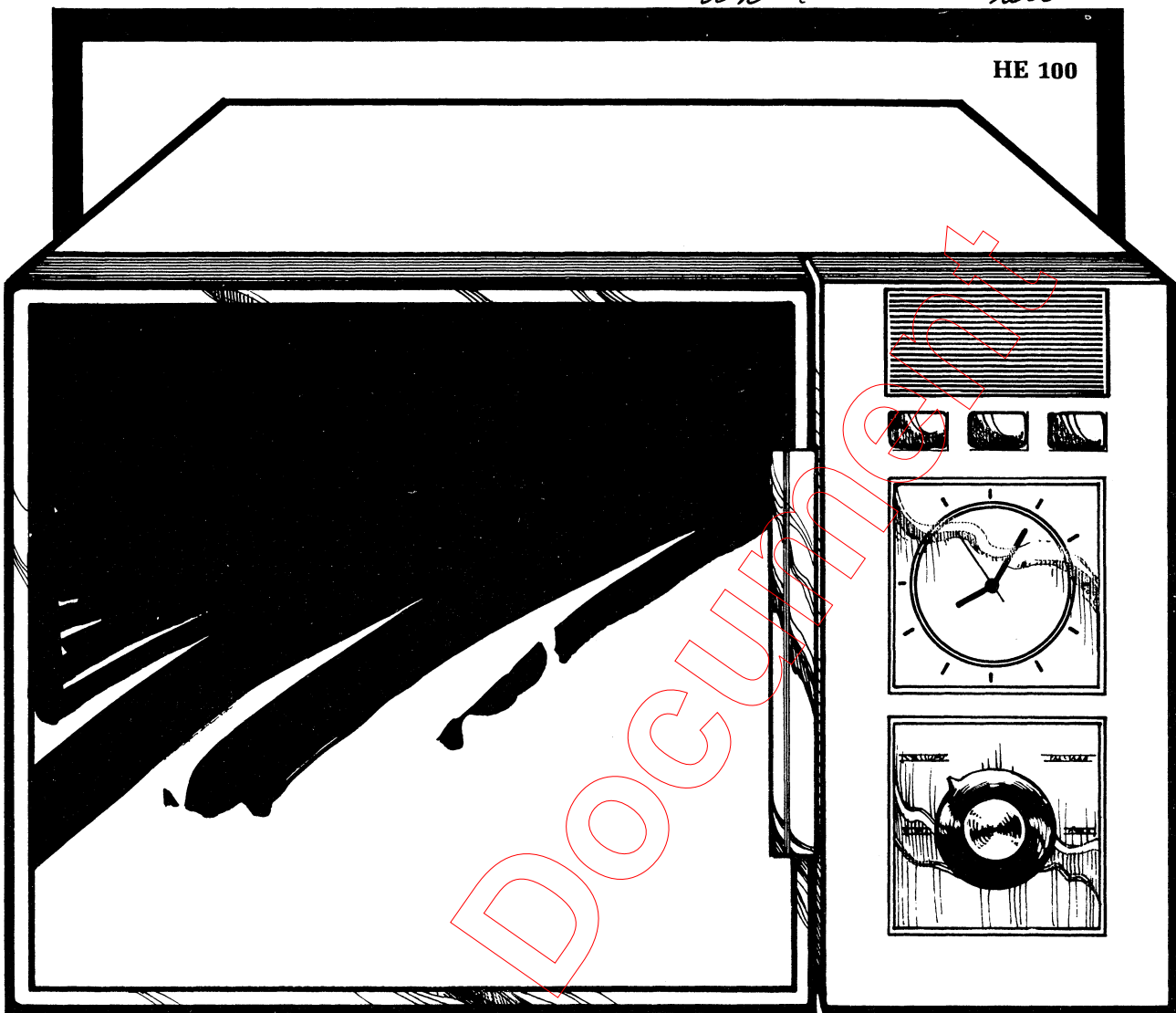
This document is provided for historical reference purposes only and should not be considered to be a practical reference or to contain information reflective of current understanding. For additional information, please contact the Department of Agricultural Communication at Purdue University, College of Agriculture: <http://www.ag.purdue.edu/agcomm>

This document has been made available through Purdue e-Pubs, a service of the Purdue University Libraries. Please contact epubs@purdue.edu for additional information.

ADM

New

HE 100

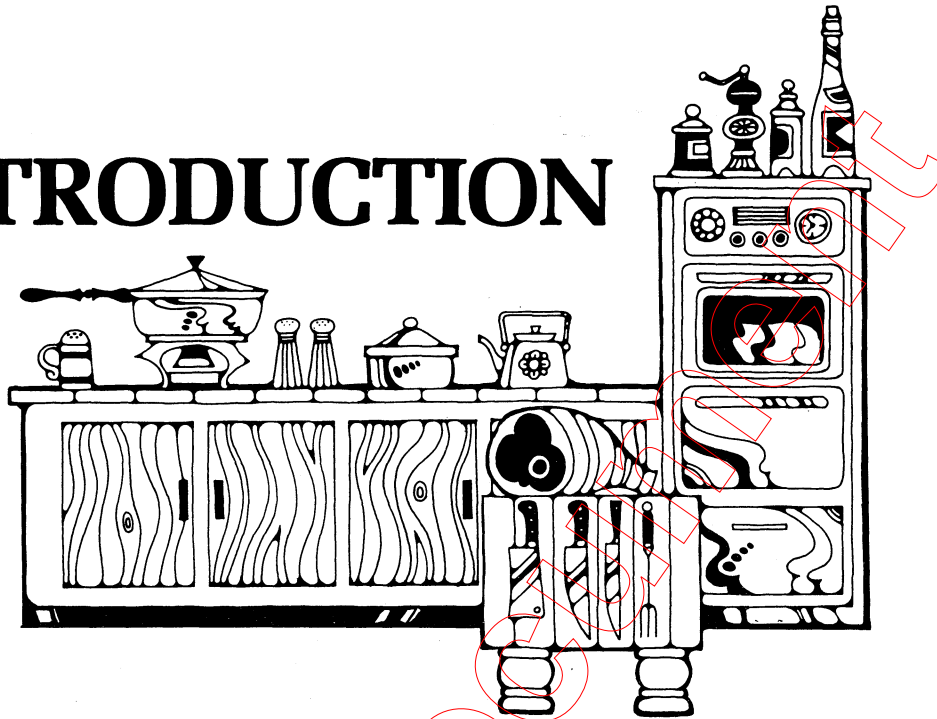


SELECTING A MICROWAVE OVEN

Historic Document

**by Suzanne Badenhop
Extension Housing Specialist**

INTRODUCTION



Microwave cooking is fast, convenient, and energy efficient. As an added bonus, clean-up is easier than with conventional cooking methods. Satisfaction with an oven depends upon selecting the exact oven to meet your particular needs.

This bulletin will help you examine the various models of microwave ovens and the special features which accompany some ovens; and to choose the model that best meets your needs.

Microwave ovens come in three basic forms: 1) countertop; 2) separate oven on a high-lo range; and 3) common cavity combination-microwave/conventional oven.

Countertop Models. The largest number of microwave ovens sold are countertop ovens. They are designed to sit on the counter or a cart and use an individual 115 volt grounded electric circuit. A few countertop

models can be mounted under wall cabinets or built in as a wall oven.

Hi-lo Models. The countertop microwave oven is sometimes placed on a shelf or support as the upper oven on a hi-lo model range. It is usually the same type of microwave model as a countertop microwave oven. Having a cook center with both a microwave and a conventional oven is appealing to consumers with limited counter space.

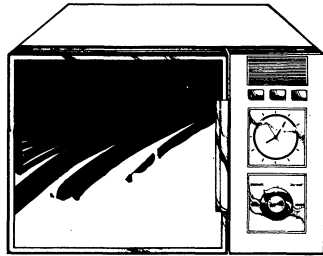
Combination Models. Combination microwave ovens have a common cavity in which you can cook conventionally or with microwaves or with both at the same time. They are available as built-in wall ovens or in place of the regular oven on ranges. This type of appliance offers the advantage of conventional and microwave cooking. If space is limited, it helps solve that problem.

BASICS

Any microwave oven has three basic components:

- The **Magnetron Tube** generates the microwave energy which cooks the food.
- The **Antenna** (or wave guide) carries the microwave energy from the magnetron to the cooking cavity.

- The **Stirrer** distributes the microwave energy within the cooking cavity. (This is usually a rotating blade placed above or behind a plastic shield to protect it from damage. Some manufacturers use a turntable rather than the stirrer to expose the food evenly to the microwave energy. Either system is satisfactory.)



BEYOND THE BASICS

While the basics of microwave ovens are similar, there are a few differences between models and brands that you may want to consider. When selecting your microwave oven consider:

Exterior Dimensions of the oven should be compatible with the counter area where the oven will be installed. The distance between the countertop and the wall cabinets above may be a limiting factor. Most microwave oven models are between 14 and 16 inches high.

Door Opening should be checked. Which way does the oven door open? Some doors open down and others to the side. The model you select should provide for a good work flow and not interfere with placing food into the oven or taking it out. Remember to allow space for the swing of the door.

Exhaust Vents on the exterior release moisture from the cooking cavity. Find the vent. If the exhaust air flow is blocked by cabinets, the magnetron tube could overheat and/or moisture could not escape from the cooking cavity. Some kitchen cabinet finishes become tacky and marred when the exhaust moisture from the microwave oven is too close to them.

Interior Dimensions of the cooking cavity are important. While most countertop microwave ovens are approximately the same size, some are available with a smaller cavity. Will the microwave oven cavity accommodate the utensils and food that you plan to use in it?

Interior Surface Finish varies among brands and models. Some microwave ovens have a highly polished stainless steel interior. Other manufacturers offer an acrylic coated or painted metal interior with a matt finish. All finishes perform well.

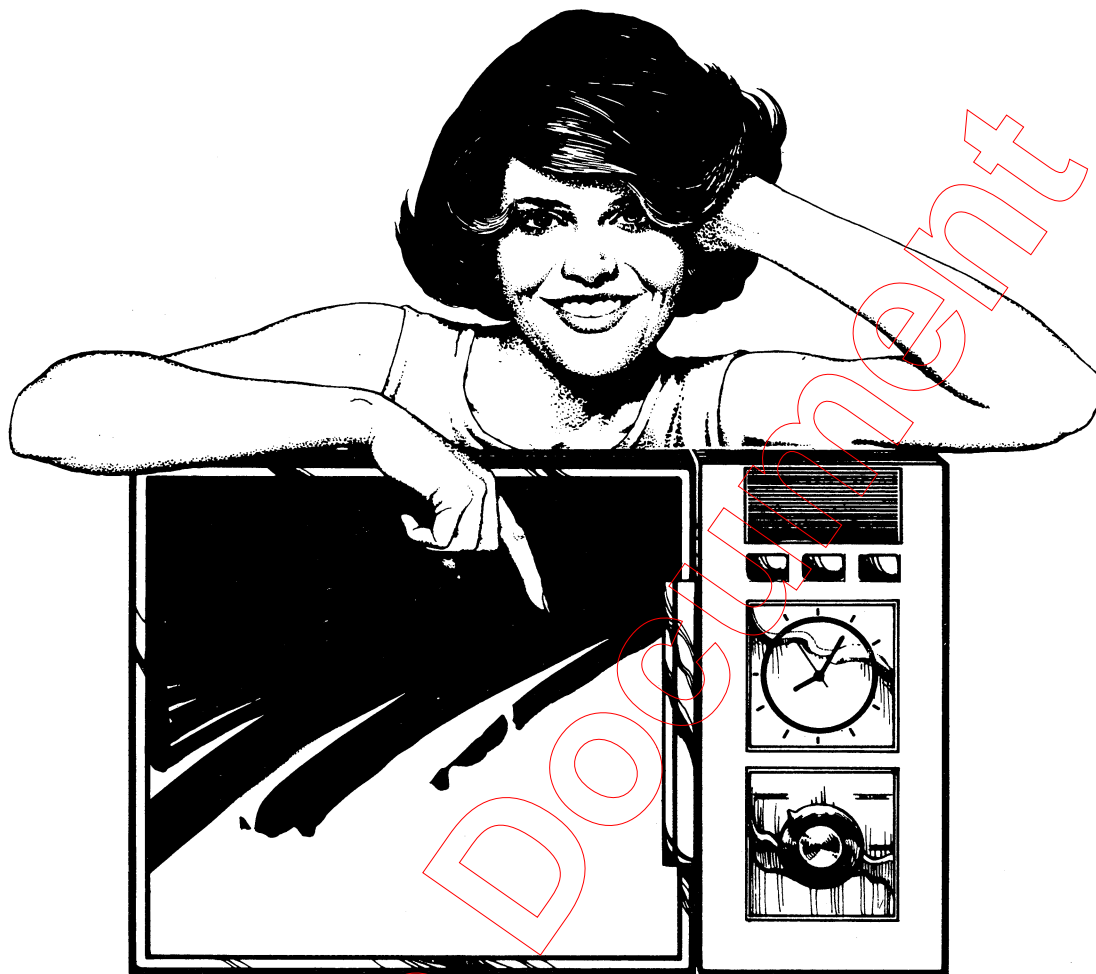
The appearance of one surface may be more appealing than another. Consider how easy it will be to clean the interior and how much time and effort you have available for cleaning. Food spatters are easily seen on a highly polished surface but blend into the matt finish. Consider the convenience of a shelf or removable tray in cleaning. Some shelves are permanently set in place, while others are removable. A small trough to catch spill-overs can be handy.

Electrical Requirements listed on the specification sheet or on a fact tag should be checked. Microwave ovens should be used on a separate electrical circuit because they require a large energy input to operate the magnetron tube. The energy input is usually 1200 to 2000 watts for countertop models. This represents the amount of energy consumed each hour of operation when used at a high power setting.

Do not confuse "wattage input" with "wattage output" rating. Wattage output refers to the level of power which reaches the cooking cavity. Manufacturers advertise wattage outputs from 400-750 watts. Because each manufacturer has its own method for measuring power output, exact comparison between models is difficult. Generally, cooking times are faster with higher output wattage.

User Instructions are important. Take a good look at them before you buy. Each brand of microwave oven is uniquely designed. While you are becoming acquainted with microwave cooking, the user instructions will be especially important. Be sure the instructions are clear and include recipes for foods you are likely to prepare.

Warranty Should be Checked. What is covered and for what period? The magnetron tube is expensive to replace. Improper use of a microwave oven can cause the magnetron tube to "burn out." Know whether the warranty on the magnetron tube covers "parts only" or "parts plus labor." Learn if there are any restrictions on who can service the microwave oven.



SPECIAL FEATURES

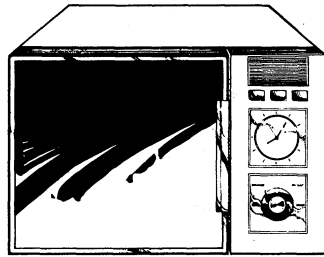
While there are slight differences in the basic parts of a microwave oven, the big differences are in the controls and special features.

Timer Controls. Cooking in the microwave oven means cooking by minutes and seconds and not by a temperature setting. (The exceptions are models with a temperature probe). The control for setting the time and power will probably be either a mechanical knob or a touch pad. It should be easy to read and use. With a salesperson's help, try the controls on a floor model at the dealers to determine how easy different models are for you to use.

The maximum amount of time on the timer will vary with the manufacturer and the appliance model. Unless you prepare many large pieces of meat, nearly all cooking will be completed in less than 30 minutes.

Microwave ovens with touch controls usually include additional features such as programmed cooking, separate minute timer and a digital time-of-day clock.

Programmed Cooking. This refers to pre-setting the power level and length of cooking time to start automatically, change power levels, and stop at a later time. Another version of programmed cooking permits the user to store information on the length of cooking time and cooking power level in "memory," and then a babysitter or other person can prepare the food in the microwave oven. A newer feature on microwave ovens is a pre-programmed card with cooking instructions for basic foods and some recipes. A few manufacturers allow the flexibility of programming your own cards. If this feature is important to you be sure you can operate it before you buy.



Variable Power Levels. Almost every microwave oven on the market today has at least two power output levels. Many have more than two. Basic models have a full power level and defrost power level. "Labels" for the power levels (cycles) on microwaves vary with the manufacturers. The power output may have a definite number of settings or it may have an infinite number of settings between full power and the lowest power setting. At full power the magnetron is on 100 percent of the time. Lower power levels are achieved by reducing the percentage of time the magnetron tube is on by cycling on and off. The percentage "on" time decreases to about 10 percent "on" time for the lowest setting usually labeled "defrost."

Probe. Many microwave oven manufacturers offer a temperature probe as an accessory feature on their deluxe models. The desired final food temperature is set on the control panel and the probe is inserted into the center of the food. When the food reaches the preset temperature the probe turns the microwave oven off. This feature has many uses other than the one for which it was designed.

Shelves. Several manufacturers offer increased cooking capacity with the addition of built-in shelves or shelf kits.

Special Sensors. Some microwave ovens have an automatic humidity sensor. Foods are categorized according to their moisture content and the user selects the food group to determine the length of cooking time. The humidity sensor measures the level of humidity in the exhaust air and calculates the remaining cooking time and power level for that food, automatically shutting the microwave oven off when the food is at the right moisture level. The humidity sensor provides satisfactory results.

Browning Unit. Because foods cooked in a microwave oven do not obtain the crispy, brown surface of conventionally cooked foods some manufacturers offer an electric heating element as a browning tool. Microwaves with this feature can be set to use either microwave power or the browning element. The two heat sources are not used simultaneously unless they are in a combination conventional/microwave oven. An alternative to a microwave oven with a browning element is to broil on a conventional oven at the end of microwave cooking. Using a browning unit adds to the time and energy required to prepare the food.

Special Containers. Some microwave ovens come with special browning dishes, grills or platters. These containers are coated with a material which absorbs the microwave energy. By absorbing the microwave energy the dish itself is heated and can sear or brown the food.

Some microwave oven manufacturers offer special stoneware or clay containers with an opening to be used with the temperature probe. These containers can be used for slow cooking in the microwave oven or for heating casseroles.

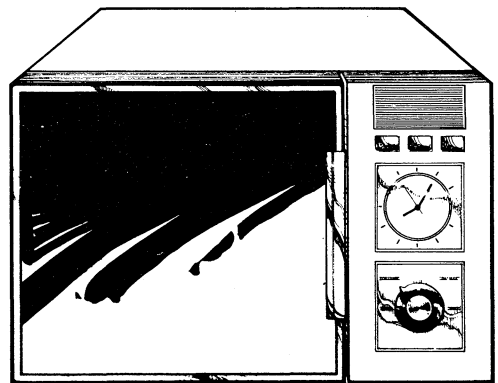
Multi-level Cooking. Multi-level cooking or a shelf that provides additional cooking space in the oven is offered on some models. These microwave ovens usually have a slightly different energy input method to assure adequate energy distribution. The design offers the option of cooking more than one food simultaneously so that an entire meal can be completed at the same time. Difference in cooking times requires that foods are introduced to the oven at different starting times.

Whichever microwave oven you select, give careful consideration to what it can do for you. Once you have made your selection, take time to get acquainted with the user instructions. Then, take advantage of its versatility and enjoy using it.

SHOPPING CHECKLIST

	OVEN A	OVEN B	OVEN C
BRAND NAME/MODEL NO.			
WATTAGE OUTPUT 115 AMPS/120V OR 220/240 V			
INTERIOR CAVITY SIZE			
EXTERIOR CABINET SIZE			
DOOR SWING (DOWN OR TO SIDE)			
POWER SETTINGS (LIST)			
COOKS BY TIME			
TEMPERATURE (PROBE)			
MAGNETIC CARDS			
AUTOMATIC SIMMER SETTING			
STONEWARE DISH			
PROBE			
TOUCH PAD CONTROL			
MAXIMUM LENGTH OF COOKING TIME			
RECIPE BOOK			
OPERATING MANUAL			
FIRST YEAR WARRANTY			
AFTER-FIRST-YEAR WARRANTY			
WHO PROVIDES WARRANTY SERVICE?			
OVEN LIGHT			
CLOCK			
CLEANABILITY			
INTERIOR FINISH			
EXTERIOR FINISH			
CONTROLS			
PRICE			

A PURDUE UNIVERSITY PUBLICATION



NEW 6/80

Cooperative Extension Work in Agriculture and Home Economics, State of Indiana, Purdue University and the U.S. Department of Agriculture Cooperating. H. G. Diesslin, Director, West Lafayette, Ind. Issued in furtherance of the Acts of May 8 and June 30, 1914. It is the policy of the Cooperative Extension Service of Purdue University that all persons shall have equal opportunity and access to its programs and facilities without regard to race, religion, color, sex or national origin.