Saving Energy

while using appliances

*by Doris Broten**

A recent Stanford Research Institute report states that major home appliances use approximately 5.3 percent of the energy consumed in the U.S. While the energy crisis will not be solved by efficiency moves directed to appliances alone, contributions through appropriate methods of using them can be made. With increased utility rates, reduction of usage will reduce the utility bill.

There are many ways that families can reduce amounts of energy consumed in use of appliances. A few simple skills can be of great assistance.

Skill in reading the nameplate on electrical appliances will show how much energy will be consumed by the appliance. This information along with the amount of time the appliance is in operation can be used to compute the cost of operation.

Sample: A toaster oven nameplate shows that it requires 1500 watts of power. Since 1000 watts is equal to one kilowatt, the toaster oven uses 1.5 kilowatts. In one hour, the toaster would use 1.5 kilowatt hours. (watts x time) If the rate for electricity is 3 cents per kilowatt hour, the cost for operating the toaster oven for one hour (assuming it is drawing power the entire time) would be 4½ cents.

This information can be used in making a choice of which piece of equipment to use to do a particular job. For instance, assume an electric skillet or a toaster oven (1200-1400 watts) is available in addition to a regular (built-in) oven (4800 watts). For certain dishes, especially small portions, the portable appliance will require less energy than the regular oven.

Skill in planning can also benefit energy conscious consumers. By utilizing appliances to the recommended capacity, optimum benefit will be obtained. Examples of helpful planning include: washing only full loads; preparing an entire meal in the oven, or baking several things at once; preparing large amounts of food at once and freezing meal size portions for later use; and using dishwasher only when full. One caution should be observed. Use appliances according to instructions provided by the manufacturer. Overloading can harm the appliance and produce less than satisfactory results. This may apply especially in the case of a dishwasher or washer.

The hot water heater is at the top of the appliance list for power usage in the home. Turning down the thermostat can reduce power consumption. A hot water heater requires from 2000-4000 watts for conventional or 6000 watts for a quick recovery model and operates about 4 hours total per day, on the average. Draining the sediment off the bottom of the tank regularly allows the water heater to operate to capacity.

Ranges require large amounts of power. A conventional range requires from 14,000 to 16,000 watts. A single built-in oven requires about 4800 and a built-in surface cooking unit 4800. The larger the burner, the greater the wattage.

Often maligned is the pyrolytic self-cleaning oven. However, current research done by General Electric has shown that this work saving feature is actually an energy saver, too. The oven is well insulated to prevent excessive heat loss during the cleaning cycle, and it actually requires only about 85 percent as much energy as a regular oven for normal oven cooking. This margin of energy conserved is equal to the energy needed for 12 oven cleanings per year. Since the kitchen will stay cooler during regular baking, some savings in air-conditioning may be realized.

Microwave ovens are often promoted as energy savers. It is true that they do require less energy than a conventional oven and are very quick. However, they are not designed to do all cooking normally done in a household. A regular oven still is needed for many preparations.

An automatic clothes dryer requires from 5000-9000 watts. Hanging clothes out to dry will obviously reduce power usage. For permanent press garments, a short cycle with no heat or air dry will tumble wrinkles out. Garments may then be air dried.

Conventional refrigerators (those with freezer and refrigerator space in the same compartment) require less power than frost free models. Keep the refrigerator defrosted. A frost build-up of more than ¼" acts as insulation and requires the refrigerator to run more. Refrigerators operate more efficiently if the condenser coils are kept clean. Regular vacuum dusting gives best results. A dollar bill can be used to check the seal. If it slips out when closed, replace the seal. A freezer requires the same care as a refrigerator.

To effect any substantial savings, family members must work together. A plan for use of electrical appliances will help each member contribute to the goal of reduction of energy usage.

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bits and a place to raise them are necessities along with some simple medical equipment available almost anywhere in the world.

With these minimal facilities, either available or promised, the formal beginning of the program took place in early January, 1973.

Armed with 22 antisera to different viruses obtained from investigators at Purdue University, North Carolina State University, Oregon State University and from stocks at the Uni-

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versity of Arizona, investigation of virus diseases of Ceara was begun. Primary attention was focused on feijao-de-cordia (cowpea — *Vigna sinensis* Endl.). This important food crop of Ceara and all Brazil has long been afflicted by a serious mosaic virus disease which had gone unidentified and uncontrolled in Ceara. The first steps were collection of diseased cowpea tissue, extraction, purification and concentration in the laboratory. This material was analyzed on a spectrophotometer and then reacted serologically against 6 antisera that were each specific for a different virus that can infect cowpea. Twenty-four hours later we had our answer, the virus was the one commonly called cowpea mosaic virus. This virus is common on cowpea in the U.S. and various European countries but had not been reported from Ceara. With this information we then surveyed various parts of the State to study the epidemiology of the disease and specifically to locate the sources of the virus causing infection of cowpea. The aim, of course, was to determine a practical control measure. During these surveys several noncultivated plants were also found infected with cowpea mosaic; all were in the same family as cowpea (Leguminosae). Because of their wide distribution and year round growth habit avoidance or elimination of these wild virus host plants was deemed impractical. The inescapable conclusion reached was that the only practical control measure would be the development of resistant varieties. Screening various cowpea varieties for disease resistance was begun.

Many other plants were observed to have virus-like symptoms and several other viruses were identified from cultivated and wild plants. Squash mosaic virus was identified from squash and cucumber while tobacco etch was found in pepper. Judging from the large number of plants observed with virus-like symptoms it seems obvious that much time and effort will be required to identify and assess the importance to agriculture of the many virus diseases of plants in Ceara.

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number and type of insecticides which were banned from use. The majority of respondents cited negligence by adults as the major factor in insecticide accidents involving children. Predictably, most of the rural group indicated that adults were most susceptible to poisoning in their community while most of the urban group cited infants as being most susceptible. In the former case, this is attributed to occupational hazards and in the latter to household accidents.

Farmers had more specialized sources of information regarding insecticides, i.e. retail dealers (25%), farm journals (22%), extension agents 22%) and extension leaflets (19%). Figure 2. The principal sources of information for homeowners were newspapers (57%) and TV (15%). It is noteworthy that TV was not listed by farmers and no urban respondent indicated extension agents as the principal source of information. It is possible to conclude that the rural group was generally more knowledgeable regarding pesticides than the urban group, at least in part, because of the type of information source.

Responses were correlated with personal characteristics of the respondents. The higher the level of education the more knowledgeable people were about insecticides and the more likely they were to view the issue objectively and rationally. Elderly people were more prone to misconceptions about insecticides.

The findings of the study have several implications for the Cooperative Extension Service and for educational agencies in general. The results suggest that agricultural extension has had little impact from a pesticide educational standpoint in the urban sector. With increasing urbanization, the need to intensify educational efforts in this area is obvious. Present channels of information should be critically evaluated in the light of these findings. The general lack of awareness of public medical facilities for treating insecticide poisoning suggest that the existence of these facilities should be properly advertised.

In conclusion, this study showed that for educational purposes regarding insecticides rural and urban audiences may be considered as distinct and separate. Differences between these audiences suggest different approaches to communication. In a largely urban society, public opposition to insecticide use may find legal expression detrimental to the interest of all concerned. Only through effective education and public relations can factual information be channeled into the decision making process of all groups of people.

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