Saving Energy and Doing Laundry
Michigan State University
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Anne Field, Extension Specialist
Brenda Long, Graduate Assistant, Department of Family Ecology

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SAVING ENERGY and DOING LAUNDRY

BY ANNE FIELD, Extension Specialist, and BRENDA LONG, Graduate Assistant
Department of Family Ecology

YOU CAN GET clothes and other washable items clean and still use energy efficiently. There are many ways you can reduce the energy used in doing your laundry. This fact sheet will point out some of them.

You could run your freezer for a whole year and your color television for half a year on the amount of energy you would save by using colder wash and rinse temperatures and line-drying part of the time. This gives you an idea of how much energy is used in doing your laundry. If you follow some of the suggestions presented here, you will get clean clothes and conserve energy, too.

Cut Wash Loads

Let's start at the beginning of the whole process. Why not cut down the amount of laundry that fills up your hamper (and your washer and line or dryer) each week? Check your family's habits; do family members automatically throw everything into the hamper after one use or wearing, whether it's really soiled or not? That wasteful habit can add up to a lot of extra wash loads each week, use more fuel energy and water, take more of your time and energy, and result in extra wear on the garments and the washer.

You can cut the number of loads to be washed and dried by laundering fabrics only when they are dirty. Wear clothes more than once unless they really get soiled in that single wearing. Use towels, sheets, and other linens several times. You won't have to do the laundry as often, and you'll save energy. When you do wash, try the following practices to save still more energy.

WASHING

Colder Water Temperatures

It takes energy to heat water. Hot water is the major cost of washing clothes. The washing machine motor uses relatively little energy. Wringer washers use about 18 gallons to either wash or rinse a load — less than for an automatic — and you can wash two or more loads in that same 18 gallons, thus cutting water and energy costs dramatically. A sudssaver will help you recycle wash water from an automatic washer, saving energy and water as you progress from lightly soiled to heavily soiled loads.

The actual amount of energy used depends on the temperature of the water you select. Every four gallons of *hot* water you use takes one kilowatt-hour of electricity (or an equivalent amount of gas or oil) to bring it to that hot temperature. Warm water is usually a mixture of half hot and half cold; therefore, by using warm water, you halve the amount of heating energy required. And, of course, cold water takes no energy from the water heater. So, by using cold water for *rinsing*, and warm or cold water for washing, **where satisfactory,** you conserve energy.

Adjust Amount of Detergent

However, most detergents do not clean as well in cold water, so you may need to use more detergent to get the wash clean. Hot water does a better job cleaning heavily soiled white cottons or removing greasy, oily stains.

For best results, cold water temperature should be between 60° and 80° F. Water temperatures below 50° F. are too cold to give good washing results for today's fabrics and detergents. Cold tap water varies according to location and season.

Use of Disinfectant

It is questionable that infectious bacteria are killed in cold water if you happen to have an illness in the family, or use a coin-operated machine also used by families you don't know. If you are concerned about this problem, you can use a disinfectant. The only effective disinfectants in cold water are liquid chlo-

rine bleach (which is not safe for all fabrics) and quaternary compounds. (Quarternary disinfectants are colorless and odorless compounds, containing benzalkonium chloride. They may be purchased in janitor, hospital and dairy supply houses.) Both may be used in warm water too, where pine oil and phenolic compounds are also effective.

Dissolve the Detergent

Powdered detergents tend to clump and do not dissolve well in cold water. Dissolve powdered detergents in warm water before adding them to cold wash water. Fill your washer with cold water, add the detergent in liquid form, and then agitate a few minutes before you add the dirty laundry.

Consider Fabric and Color

Select water temperature according to the type and color of fabric and the type and amount of soil of the wash load. Use cold water to soak stains such a blood, fruit, juice, and milk before washing. Hot water will set these stains. Heat-sensitive fabrics made from man-made fibers and permanent press need less pressing when you use a warm wash and cold rinse. Use a **warm** or **cold** setting for colored and lightly soiled items. Always rinse all items in cold water. There is no reason why the rinse water hase to be warm or hot. You can save about 75% of your laundering energy consumption by using warm water for washing and cold water for rinsing as compared to hot water wash and hot water rinse. More can be saved by washing some loads in cold water.

Temperature — Action — Concentration

The three factors in getting clothes clean are water temperature, washing action, and detergent concentration, assuming the water is softened. When you reduce water temperature, you must increase both washing action and detergent in order to get clothes clean. As a general rule, for cold water wash use one and one-half times your usual amount of detergent. To remove soil in cold water, select the longest cycle on your washer, add agitation time to a shorter cycle, or use a prewash or presoak to give extra washing action.

Full Vs. Partial Loads

Full loads use less energy than several partial loads. Filling the washer uses less water and fewer uses of the motor than several partial loads. Hold laundry until there are enough items to make a full load, but don't overload — clothes won't get as clean. If your washer has adjustable water level controls, use them. Match the size of the load to the water level. Some washers have a minibasket or special settings to permit washing small loads or very delicate fabrics with a minimum amount of water and energy.

Locate your washing machine close to the hot water heater to minimize heat loss in piping. Generally, the temperature will drop 1° F. per foot of pipe. Be sure there are no leaks between the water heater and washer. Also, turn off the hot and cold water valves attached to your washer between laundry sessions.

DRYING

A dryer is a great helper, but it does use a great deal of energy — almost three kilowatt-hours per load for an average load. So, where possible, break your complete dependence on the dryer and try alternatives for part of your wash loads.

Line drying uses almost no fuel energy. If you have a yard, free solar and wind energy can be used to dry many items. Install a clothes line or, if space is limited, one of the compact line devices. Sheets, socks, underwear — all dry satisfactorily on the line. If you prefer towels extra-fluffy or jeans wrinkle-free, run them in the dryer first for a few minutes and then hang on the line to finish drying. Sun drying makes linens smell fresher. For the winter, a clothesline in the garage or basement can be used, and will help provide humidity in the air. Or, if space permits, dry small items on a folding rack in the bathroom or other living areas.

When you do need to use the dryer, use it efficiently. Don't overload, underload, or overdry. Permanent press fabrics are engineered to be "ironed" in the dryer and such clothes usually have a smoother appearance if dried properly in the dryer. But to have that good appearance, they need to tumble freely and be removed quickly after the dryer stops to prevent wrinkling. So don't overload the dryer. Then you won't have to spend the time and energy ironing.

Don't dry widely different fabrics in the same load — like heavy towels and lightweight shirts. Their drying times will be too dissimilar. Match dryer loads and fabrics. Synthetic garments dry best on a **warm** rather than **hot** setting. Use the dryer cycle and temperature suitable for the load.

Underloading — running the dryer for just a couple of items — wastes energy. It also may keep items from tumbling actively, which is important in shaking out wrinkles. If a few items are not dried when the rest of the load is, remove and hang on a line or hanger to finish; or, if flat, lay on top of the warm dryer.

Overdrying in a dryer makes clothing harsh and stiff. It also uses electricity or gas unnecessarily, causes

static and wrinkling, and makes garments more difficult to iron. Remove clothes when they still have a little moisture in them. Experiment with a timer or automatic control and determine the best setting for each fabric type. Some dryers are equipped with heat sensing devices that automatically turn them off when the load is dry.

Plan washing and drying so loads run continuously from washer to dryer. This takes advantage of an already warm machine.

Take care where you locate your dryer. It should be installed in a warm place to reduce the amount of heat needed. It also needs access to fresh air. Also, check and clean the dryer exhaust on the outside of your house occasionally. If it is partially clogged, this can lengthen drying time and increase energy consumption. Keep the lint filter inside the dryer clean for the same reasons.

IRONING

By removing clothing and linens promptly from the dryer, and folding or hanging them carefully, many items will require little or no ironing. When you do iron, do several items at once rather than heating the iron several times. Iron fabrics which require low temperatures during warm-up and cool-down periods. Turn the iron off when you are interrupted for any length of time and when you are finished.

SAVINGS ADD UP

To give you a better idea of the amount of energy you can save in doing laundry, several examples with figures follow:

1. If your washing is done with hot water wash and rinse, and if you cut one load per week, the washer and dryer energy you save is about 572 kilowatt-hours per year. That's enough energy to run your color television and toaster for a year.
2. Suppose you have always washed in hot water, rinsed in warm water and have done an average of six loads per week. If you switch to warm wash and cold rinse, you will save four kilowatt-hours per load, and 1,248 kilowatt-hours per year. For this same amount of energy, based on average annual consumption figures,[1] you can power a manual defrost 16-cubic-foot freezer and a vacuum cleaner. Cold wash water will save even more energy.
3. If you line dry one-fourth of all wash loads in a year you will save at least 210 kilowatt-hours, or about the amount of energy needed to run an electric blanket, toaster and hair dryer.

BUYING LAUNDRY APPLIANCES

When you are purchasing a new washer or dryer, match the size to your laundry needs. Large capacity washers can handle in one load what small ones must do in two loads; but without variable water level, they can waste water sometimes. Consider the following features when you are buying:

— variable water levels

— controls that let you choose cold water rinses with all washes

— short cycles, soak cycles and sudssavers in washers

— moisture sensing devices, timers and variable temperatures in dryers.

In the future, look for energy-efficiency labeling on washers and dryers. The federal government and industry are currently working on ways to decrease the energy consumption of these machines.

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[1] *Citizen Action Guide to Energy Conservation," Washington, D.C.: Citizens' Advisory Committee on Environmental Quality, 1973, pp. 32-33.*

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