Cooking without fuel

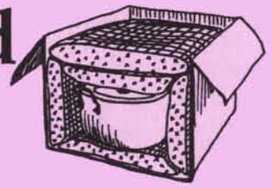
TRADITIONAL cooking methods, using firewood and charcoal, prove more and more time consuming for women around the world as reserves of fuel trees are used up. Women find they either have to walk further to collect enough wood for cooking the family meal, or else buy expensive paraffin. The use of fireless cookers is not a new idea, but often the ideas are presented in ways which seem alien to people. Fireless cookers are unlikely to replace traditional methods of cooking, but they can be a very useful supplement. Here we provide some ideas for cookers which will cost almost nothing to make and have many uses.

As supplies of firewood decrease, there is one form of energy which is nearly always available, free of charge in unlimited quantities, in most countries. This is the energy of the sun. Solar cookers use the heat of the sun to cook food.

A problem with solar cookers is that sunlight is hottest at midday, but many people traditionally eat in the evenings. However, their use can be adapted to fit in with people's way of life. For example, the cookers can be used to sterilise water for drinking or to cook beans, maize or rice ready for adding to the evening meal. Meals can be prepared in the early morning which can cook slowly during the day and be quickly re-heated at night. If dogs are a problem, find a way of placing the cookers on the roof of the house.

People will need to see these ideas in use before they will even begin to consider using them themselves. Demonstrate their uses at clinics or grinding mills while people are waiting their turn.

Insulated Cookers



Insulated cookers prevent heat loss from pans of boiling food so the food continues to cook very slowly for several hours. A pot of food is brought to the boil on a stove. This pot is then quickly placed in a very well insulated box or basket.

A strong box is lined with insulating material. All kinds of material can be used to provide insulation – polystyrene granules, waste cloth, dried grass, wood chippings, foam rubber or crumpled paper. A lining of tough cloth or sacking is sown, glued, stapled or nailed to hold the insulating material in position. Two cushions are then made out of cloth. It is a good idea to make a smaller one and a larger one. These are filled with more insulating material.

Women in Kenya have adapted this method by using traditional palm leaf baskets which are readily and cheaply available. They place insulating material in the baskets and sew this into place with material. The baskets are strong and long-lasting and, of course, easy to carry. This means that hot food, tea or porridge prepared for breakfast can be carried to the fields to provide hot food at midday.

Insulated cookers are excellent for cooking beans and grains. The pan of food (with plenty of water) is brought to the boil and placed quickly in the box or basket to finish cooking. Soybeans take hours to cook on the stove, so that although they are higher in protein than any other bean, many people do not use them because they need too much fuel to cook. For a good flavour, soybeans should be placed in boiling water (adding the soybeans slowly so that the water does not stop boiling). They will then cook well in the insulated box or basket. You may need to boil them a second time after three hours.

Allow two or three times the usual cooking time. Avoid checking food as there will be a huge heat loss.

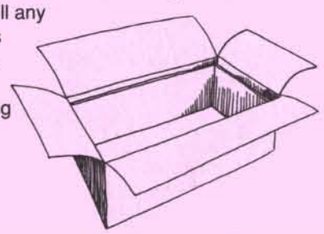
Solar Cookers

There is a great variety of solar cookers. Here we look at one model, designed by Anna Pearce, which is easy and cheap to make and simple to use.

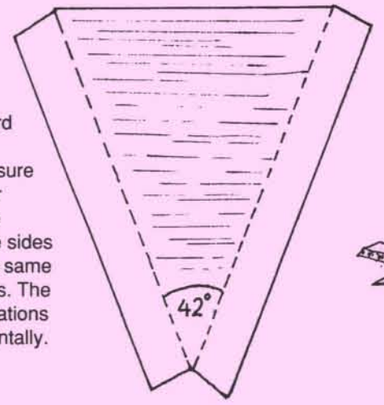
Materials needed

- Two large, strong cardboard boxes with flaps
- Cardboard pieces
- Piece of glass cut to size
- Insulating material (see *Insulated Cookers*)
- Sacking or strong dark material
- A protractor (to measure angles)
- Silver card or aluminium foil
- Glue (wood glue is best)

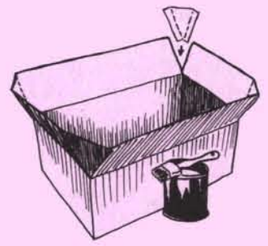
1 Find a large strong box with flaps and another slightly smaller box. This should fit inside the outer box and be about 1cm lower when fitted inside the box. A gap of 1cm is needed between the outer and inner box on one long side so a pane of glass can be stored safely when not in use. Fill any small spaces between the two boxes with insulating material.



2 To join up the flaps, cut out four of these triangle shapes from the cardboard pieces, using a protractor to measure the 42° angles (or copying the angle shown). Make the sides of the triangle the same length as the flaps. The cardboard corrugations should run horizontally.

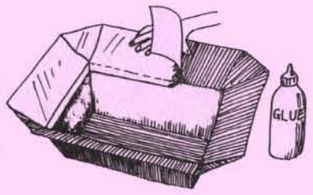


3 Use a spoon handle and ruler to press down carefully along the two long sides of your corner pieces until you can bend them forwards.



4 Attach the corner pieces to the outer box flaps. You can glue them or use paper fasteners. Paint the whole box with white paint if possible.

5 Glue silver card or aluminium foil to the inside of the top flaps down to the inner box. Include the corner pieces so that they will also reflect the sun.

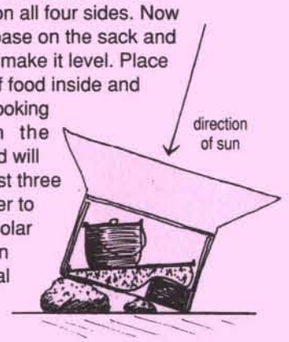


6 Now comes the only difficult part! You need to obtain a piece of glass to fit exactly into the outer box, resting on the ledge made by the inner box. Smooth the edges with a piece of sandstone. Glue tape round the edges, leaving loops so that you can lift it easily.

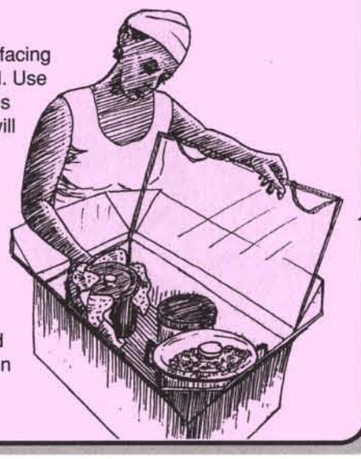
7 Cut out a piece of wood or metal from an old paraffin tin to fit loosely inside the box cooker to make the base. Paint this black or use smoke and grease to blacken it.

8 Fill a small sack or bag with insulating material and lay this bag at the bottom of the cooker. It is also a good idea to put a heavy stone inside the bottom of the cooker to stop it from blowing away.

9 Place the box so it faces the sun, propping up one long side with stones until the box's shadows are equal on all four sides. Now place the base on the sack and adjust it to make it level. Place the pans of food inside and cover the cooking area with the glass. Food will take at least three times longer to cook in a solar cooker than on a normal stove.



10 You can move the cooker occasionally to keep it directly facing the sun. Avoid shade and wind. Use thin-sided pans with black sides and black or glass lids. Food will cook more quickly without added water and if cut into small pieces. Several small pans will cook faster than one large pan. Remember to include a pan of water each day to provide safe drinking water. When removing food, lift the glass with the tapes and stand it upright inside the box in the space allowed for it.



Try out and adapt these ideas. Maybe your group could even produce cookers to sell?

If you have other ideas for using fuel-less cookers – or particular recipes which work well, let us know and we will include them in a future issue.

Anna Pearce has spent many years developing fuel-less cookers – particularly in South Africa. She would be interested to hear from groups who are working with solar or insulated cookers and would like to develop their work further. Write to…
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