



# retained heat cooking



## what is it?

If removed from a cooker, food in a cooking pot will continue to cook until the pot cools down. Placing the pot in an insulated box to prevent cooling means that the food will continue to cook without the use of further fuel. This is known as retained-heat cooking, aka thermal cooking, haybox cooking, sit boiling or fireless cooking. Traditionally the insulation was straw or hay, hence the name haybox. In the middle ages, earthenware pots were used in a hole in the ground insulated with moss, leaves or hay; and in the 1940s the Girl Guides were taught how to make a haybox using a large biscuit tin and straw. Nowadays we have much better insulating materials and you can make a very efficient haybox. The energy savings can be dramatic. For example, potatoes or rice are normally brought to the boil and then simmered for 15-20 minutes. If they're brought to the boil and then the pot is placed in a haybox, that's 15-20 minutes' worth of fuel saved. Modern cookers based on the haybox principle are commercially available from the usual outlets. Known as thermal cookers, they use an outer vacuum flask with a removable inner stainless steel cooking pot. They work in the same way as the traditional haybox, but are smarter-looking and more expensive.

## what are the benefits?

- A haybox cooker can save up to 80% of the energy used to achieve the same results by simmering, so there are both economic and environmental benefits - i.e. cash saved and much lower pollution / CO<sub>2</sub> emissions.



Commercial thermal cookers.

- Food cooked slowly at a lower temperature tastes nicer and is better for you, as more of the vitamins are retained.
- Cooking times are not critical; leaving the pot in the haybox 'too long' doesn't harm the food (unlike boiling which turns vegetables to mush), so preparing several dishes to be ready at the same time is easy; this is particularly useful if you only have a single-burner cooker.
- Once the initial boiling is over, the pot can't boil over and will not burn the food - so it can be left unattended, freeing up time; hence *The Idle Hour Cookbook*, published in 1927 by Chambers Manufacturing, extolling the virtues of their 'Fireless Gas Range'.
- The amount of water used to cook rice, potatoes or beans can be reduced a little because there is little or no evaporation compared to normal simmering.

## what can I do?

### Make a haybox cooker

You can, of course, use a box full of hay, if hay is available where you live. If not, use a box / cooler with old towelling and textiles, or wrap the pot in a sleeping bag. Here's a way to build a 'haybox' cooker from scrap insulation board.



Home-made haybox in use.

- Choose a pot: the lid has to fit well, and the pot needs to be full for it to work properly - so select a pot that matches the number of portions you normally cook.
- Acquire some insulation board; this can be bought from builders' merchants or found (skips may be a good source).
- Cut a square that's bigger than your pot for the base. Cutting can be done with a saw or knife (wear a mask to protect against dust). Some



types of board cut more easily if the knife has been heated, but ventilate the area well.

- Cut several more squares the same size until you have a pile a little taller than the pot.
- Mark and cut a circle from the middle of one of the squares so the pot fits through (the board must fit closely around the pot).
- Keep cutting until you have a pile of pieces with a solid top / bottom and a hollow centre.
- Insulation board is quite solid so you may not need a box – just add a weight or tape or fix the boards together somehow.

## Cooking with a haybox

- Bring the pot to the boil on the hob.
- Simmer for a couple of minutes to make sure that all the contents and lid are up to boiling temperature.
- Remove from heat and transfer to haybox.
- Place a brick or similar weight on top to make sure there are no gaps between the layers of insulation board.
- Allow your food to cook for around twice as long as on the hob - but there's no harm in leaving it for longer; e.g. you can leave potatoes or rice for almost an hour, and they'll be fine.
- Don't keep opening the haybox to check on your meal - it won't burn; opening it lets some heat out which is not replaced.
- NB: make sure your food has boiled thoroughly before putting it into the haybox; there's a risk of bacterial growth if not.



A real haybox – i.e. a box with hay in it – used regularly by friends of ours. Put hay underneath and around the sides, add the pot, put hay on top, then a lid – works a treat.



Finished meal.

## Estimated cooking times

As a rule of thumb, you can double the normal cooking time. However, it's difficult to specify precise times as a little longer during the boiling stage would mean a lot less time in the haybox. The size of the food also makes a difference; e.g. whole potatoes need more time than if quartered. If the food isn't cooked through you can do another short boil at the end. After a little practice you will learn what works for you.

## Using a thermos flask

For cooking small amounts (say a single portion of rice or pasta), a quality thermos flask can be used in a similar way. The principle is the same as the haybox, but as the flask itself can't be heated, follow these steps: pre-heat the flask with boiling water; bring food to the boil in a saucepan; empty the flask; carefully pour (use a jam funnel if you have one) the contents of the saucepan into the flask; seal and leave to cook. Don't hold the flask in your hand when pouring, in case you spill boiling water. Rice and pasta expand when they cook so don't fill the flask to the brim, and be careful when opening in case the flask has become pressurised.

## resources

- see lowimpact.org/retained-heat for more info, courses, and books, including:
- J & S Segaran, *Haybox Cooking*
- Margaret Mitchell, *the Fireless Cook Book*
- thermalcookerrecipes.com - recipes
- bit.ly/3lufSom – Low-tech Magazine: if we insulate our houses, why not our cooking pots?
- bit.ly/3M5M7wy – haybox cooking on a farm

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