



How to Manufacture Insulation in a Hay Basket

Guidelines

A. General Introduction to Insulated Hay baskets

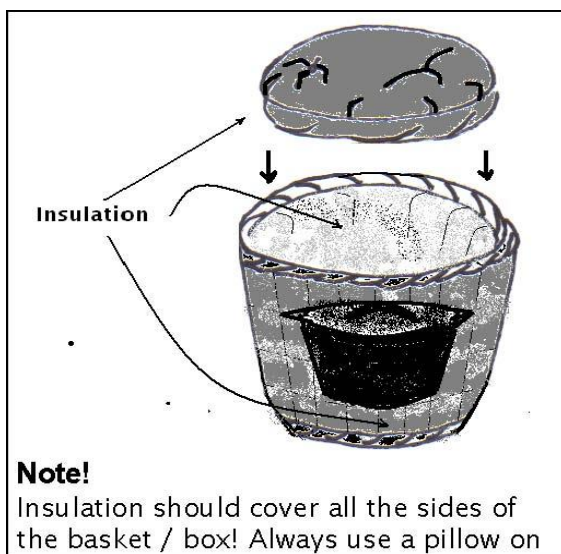
Insulated Hay Baskets have a considerable wood-saving function during the Cooking process. After cooking the food in a solar Cookit or on a fuel-saving stove, the pan with food is placed in the Insulated Hay Basket. The cooking process continues within the hay basket. The other function is that the food is kept warm for 4 hours.

In almost all districts and locations hay baskets are produced; manufacturers make hay baskets from different locally available cut bamboo, reed or other raw materials. All raw materials used are appropriate for hay baskets.

Giving an order to a local basket manufacturer, it is essential to discuss the size. Take into account that insulation within the basket makes the basket much smaller inside. In general the inside size should be able to fit a 4-litre pan. Bigger households (10 people) use much bigger pans, so size of the manufactured basket has to be adapted to a 5, 6 or 7 litre pan. It is preferable that an ISC/ RET small enterprise sells different sizes insulated hay baskets (see designs below).

The description + pictures/ photos of the manufacturing process below are guidelines for a effective but also rather expensive hay basket. It is possible to manufacture much cheaper insulations with the same heat retention effect.

In general insulated baskets are made of different materials including newspaper, dried grass, sponge, black plastic bag and colourful cotton materials on the top. All these materials help the hay basket keep a pot warm for about five hours.
top of the pan/kettle.



General principles of insulation:

- Layers of woollen cloth or a blanket, with a pillow at the bottom and on top. Put the pan inside and place the pillow on top.
- Locally available grass, banana leaves, straw, chicken feathers, etc.
- Combination of sponges, black plastic, grass, old newspapers.
- In a box, use enough straw / grass to cover the pan on all 6 sides / all around.
top of the pan/kettle.

B. How to make the insulation for the basket

Materials required for insulating hay baskets

- Basket
- Two layers of newspaper
- Dried grass – any dried grass for roof etc. except grasses that cattle do not eat
- Sponge – thickness, ½ inches
- Black plastic bag – One meter (including the cover)
- Quality colourful cotton materials– 2 yards or 72 inches (including the cover)
- Thread – No. 9 or 12
- Needle – For the basket we can use umbrella wires after some adjustments or needles listros use.

How to prepare the insulated hay basket

- Cover the inside of the basket with newspaper (photo 1).
- Arrange the dried grass using scissors by cutting the edge to remove the dirt or soil etc. (photo 2).



1. Newspaper in basket



2. Dried grass



3. Measure spongo

- Put the dried grass on the newspaper including at the bottom (by preparing a separate amount of grass for the bottom of the basket (photo 2).
- Put the cotton (tit) at the bottom of the basket (on top of the grass) (photo 1).
- Measure the length and circumference of the basket (photo 3) and accordingly cut the sponge.
- Put the sponge inside the basket covering all the dried grass. The edges of the sponge shall be overlapped (photo 4).



4. Put sponge inside



5. Sponge at the bottom



6. Plastic + cotton

- Make a circle on another sponge using a marker by putting the bottom side of the hay basket on the material and cut the sponge (photo 5).
- Put the sponge circle at the bottom of the basket on the newspapers and cotton (if cotton is available) (photo 5).
- Put both a one meter black plastic bag and the one and half yard cotton material (the material on top) and stretch them in the basket (photo 6).
- Put one hand on the cotton material and push it down.
- Make sure that the plastic bag and cotton material are placed properly.
- Put a bucket filled with stones or one big stone (on photo 6 in orange cotton) in the basket (on top of the cotton material).



7. Cut cotton clothe + plastic



8. Sewing material on basket



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- Cut the cotton cloth and black plastic bag together at the edge of the basket (photo 7).
- Make nice edges around the basket including the cloth, bag and the newspaper edge (alone) (photo 7). Leave some plastic and cotton on the outside edges for sewing/fixing the material on the basket (photos 8).
- Sew the basket at the edge of the colourful cotton material using the thread and needle. Sew two times (photos 8).

C. How to make the cover

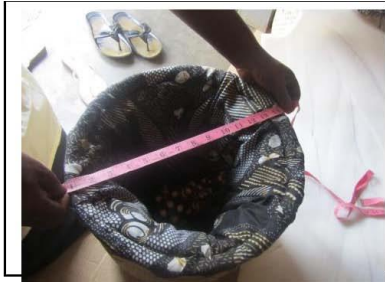
Materials required for the cover of the insulated hey basket

- Sponge
- Newspaper
- Two layers of black plastic bag
- Two layers of colourful cotton material (similar to the hay basket)
- Four pins
- Scissors
- Thread – No. 6
- Needle – ordinary used for sewing clothing

Procedures for preparing the cover of insulated hey basket

- Stretch black plastic bag on the floor or table.
- On top of the black bag stretch black cotton materials.
- Fold into two (leaving the black plastic bag outside).
- Put the insulated hay basket upside down on the black bag.
- Draw a circle on the stretched material against the top of the basket.
- Use the four pins at the four directions.
- Cut the material with a pair of scissors following the marked circle, a bit removed from the pins but following the circle (make it nice with the scissors).

- Thread the needle.
- Sew the material two times outside the marked area and on the line of the pins, leaving a small hall open (not to be sewed).
- Put the colourful material outside while turning the black plastic bag inside using the small hall left open – exposing the cotton material outside.
- Sew the plastic bag and the cotton material together starting where small open area is left.
- Open the small hall area put the cotton material outside, putting the black plastic bag inside.
- Measure the top edge of the basket horizontally/ vertically.



- Get a thread with the measurement.
- Fold the material into two equal parts.
- Using the folded material and a marker, make a circle on a sponge.
- Cut the sponge following the circle line (not on the line).
- Draw another circle on a sponge using a marker and the circle sponge, which was cut before.
- Place the sponge circle on four layers of newspaper and draw a circle with the marker, leaving a small open area.
- Cut the newspapers, but do not cut the small open area (leave the small open area).
- Put the newspaper circle in the middle of the two sponges circles
- Roll the sponge and newspaper together.
- Put the rolled sponges and newspapers in the cloth through the open area, leaving the edges of the newspapers outside.
- Put a hand in the cloth and unroll (arrange) the sponges and newspapers horizontally using your hand inside the cotton cloth (maintaining the newspapers in the middle of the two sponges).
- Leave the edges of the newspapers on the outside of the cloth at the side of small open area and divide the four layers of newspaper into two parts (two layers each side).
- Fold dried grass into two equal parts and put it in the cotton material between the two sides of newspapers.



- Arrange the grass inside the cloth using one hand.
- Continue adding grass and arrange it inside the cloth until the cloth is about to become full.
- Put a small amount of cotton around the open area on top of the grass.
- Add grass until the cotton cloth becomes full.
- Clothe the open area with each side of the grass.



- Cloth the open area with the two sides of the newspapers crossing each other.
- Stitch the open area using thread and needle.

