

STOVE TEST – COOKING PLANTAIN PORRIDGE

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November 22, 2014

Report on first use of gasifier stove modelled on Champion TLUD.



Figure 1: Our typical arrangement, wood pieces with similar length first placed vertically into inner cylinder, the spaces in the top part of inner cylinder are then filled up with short wood pieces.



Figure 2: Consistent and reasonable strong flame. No smoke



Figure 3: Flame blown off by wind, producing lots of smoke. We have to remove the pot and fan in air to revive the fire.



Figure 4: Boiling food



Figure 5: Food continues to simmer



Figure 6: Food is ready after two batches of firewood

Comments/Suggestions from Kirk Harris:
Huck,

It is good to see that the stove is functional and can be used for cooking. The two problems are wind blow out and length of burn.

Wind blow out means protect the stove from the wind, either with a wind screen or by using the stove in a wind protected location. Another helpful, but not absolute, solution is to provide the holes I described in an earlier email for turn-down. Punch or drill 6 evenly spaced holes, 4 mm in diameter, around the fuel chamber. Locate them 2 cm down from the top edge of the fuel chamber.

These will provide pilot flames which may survive the wind gust and restart the stove with only a puff of smoke. Several other similar holes lower down, perhaps 1/3 the way up from the grate will also give it more wind resistance.

The length of burn can be increased, after the above holes are made, by blocking most of the primary air. Perhaps fit a brick or piece of metal to block most of the primary air hole. The combination of the pilot flames supporting the main flame and the reduced primary air should allow some turn-down. Start the fire with the primary hole open for a high flame, and bring the food to boil. Then insert the brick to mostly block the primary hole and the stove should turn-down for simmering, which will use less fuel and extend the burn time. The device will be fully adjustable from a high flame, through medium flames, to whatever the lowest stable flame is, depending on how much primary air is let in. This will take some experimenting. Too low a setting will put the flame out. Also, at the end of the burn, at the transition to coals, the low flame will go out before all the smoke is gone and will produce some smoke. A high setting will not produce smoke at this point.

Kirk

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