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Subject: Best Popcorn poppers for Home roast

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This article was reposted from a few requests made on this subject, even though plenty has already been posted here in alt.coffee before and after my post.

Dung Truong

-----< original post >-----

As far as the popcorn poppers for home roasting, the bests that I have found are the old WEAEVER Popcorn Pumper and the old Westbend Poppery (that many people referred to it as the Poppery I). These are 110V poppers that were discontinued probably 8 to 10 years ago.

The WEAEVER Popcorn Pumper is made with a white plastic top half mated to the yellow plastic bottom half in a lightly flared out diamond (or flying-saucer) shape, with a 1.5" tall white plastic vertical tube opening at the top for the yellow plastic chute to fit in. There is a big rectangle opening on the side of the upper white plastic housing for melting butter (with an especially-shaped butter-melting cast aluminum cup). There is an open 1/8" round hole inside this opening area to produce extra heat for melting butter: Hot air escapes partially from the heating chamber here to actively warm up the butter melting cup, but this results in heat lost for coffee roasting: If the roasting chamber was loaded up with coffee beans, more air will be redirected out of this hole due to the back pressure at the beginning of the roast cycle, and this reduces the heat and the forced air that is needed to move the coffee beans around in the chamber. This hole can be plugged up entirely, or used as a temperature and air flow control by opening and closing it when needed for specific purposes (since heat and air are reduced with its opening, it can be used for manipulating these elements slightly during different phases of the roast). I tried both methods, and each has its own use and advantage. I later ended up plugging up this hole completely in favor of having more hot air for roasting larger loads. The on-off switch locates on the yellow bottom half, right below this side opening.

The white plastic cover is not heat resistant. It will melt and burn if hot air blows right onto it - It doesn't smell good and probably not very healthy to inhale either. I always have to maintain an even clearance space all around the top bakelite tube inside the chamber for one of the earlier model of this popper - one touches and the white plastic burns to brown. Heat escape from the 3 vertical slits at the tops of the bakelite tube can also burn the white plastic part to

the same degree. The later Popcorn Pumper models have several "spacers" added to the insides of the white opening tube to maintain this clearance spacing on its own. The yellow plastic is of the same material, but it doesn't contact with the direct heat; so, there should not be a problem with this part.

Insides the opening at the top is a 2" tall black bakelite tube sitting on top of a 2" tall cast aluminum roasting chamber; so, the total height of the roasting chamber is about 4"+. If a clear glass tube is installed on the top instead of the yellow plastic chute, the beans will be visible all the time at 45-degree down-angle view, and half way through the roast, the coffee beans will be fully visible as they are thrown up in the air insides the glass tube, giving a full view of the coffee beans and its color to inspection. The air from the fan comes out through angled vents at the bottom wall of the roasting chamber and creates a cyclone of rising hot air insides the chamber. The airflow is very strong such that it will move 5 oz of the coffee beans freely without manual stirring. I have tried 6 oz of coffee beans and I still didn't have to manually stir the beans either - but the beans moved slower, the roasting time was a little shorter, and the roast was slightly less even because of the much heavier load. I once tried 7 oz and the beans moved very slowly; so, I tilted the popper by 30 degree or so and the beans moved better, and a little bit later, I put the popper back to its normal position when the beans moved much better on its own - still no manual stirring, but the resulted roast was even less even, even though this is not necessary a bad thing: It can be a positive or negative effect depending how one likes his/her coffee roasted. As such, roasting the largest-size coffee beans pose no problem with popper. At the center of the bottom is a dome that encourages the bean to move around its center point better.

The fan insides are driven directly by 110v AC current, but it was wired to be interconnected with the heating element (both are either on or off). Isolating them is easy just by moving one of the fan's wires to different tap so that it's always on. The thermostat locates right on the outsides of the upper roasting chamber; so, the wire can also be bypassed easily to defeat the thermostats. On some models, this thermostats can also be adjusted to cut off at a higher temperature range such that the beans will be protected from too high of a temperature insides the chamber and roasted too quickly. The heavy cast aluminum chamber gives this popper much more steady temperature during roasting, but this makes the bean cool down by the popper impractical: It takes just too long (a couple hours) for the heavy metal to cool off on its own; so, the cooling has to be done outsides of the popper.

There are a few popcorn poppers named "Popcorn Pumper" that are still available today, but it's NOT the one that I am described here, and the major different being the cast aluminum roasting chamber: None of these later models have it and the design was entirely different.

The Westbend Poppery I has almost exactly the same gut, but without the hole for melting butter. The outside shape is slightly the same as the Poppery II seen today, tall, flat on the front, rounder corners on the back, with the on-off switch in the lower front right corner, bigger and a lot heavier than the Poppery II, mold in heavy and thick light brown/tan plastic. It's outside cover construction seems a bit more solid than the Popcorn Pumper, but it does look bulkier and it is harder to open and modify. The machine can be disassembled starting from the bottom. All the wirings and the fan will be fully exposed

once the bottom is removed, but the thermostat is hidden from view in the middle of the popper. So, to defeat the thermostats, the roasting chamber has to be removed completely from the outer housing, and it requires a long hex socket to open it. The bakelite tube that sits on the cast aluminum roast chamber is at least 4" tall; so, it's almost 2" deeper than the Popcorn Pumper. As such, even with a clear tube installed on top of the Poppery I and I am at the end of roasting cycle, the roasting chamber was still too deep for the coffee beans to be clearly visible, and the black bakelite chamber made the roast-color recognition task harder. So, the lucky owners of these poppers roasted pretty much by sound instead of sight and sound. The bottom of the roasting chamber is flat - with no dome in the center as in the Popcorn Pumper.

Both of these poppers used the same core engine parts with 1500 watts heating coil and cast aluminum heating/roasting chamber (all current models use thin-sheet aluminum instead). These are the older popcorn machines that were no longer made today. Consider that they are sold for about \$35 10 years ago, it's no wonder that the manufacturers have to discontinue these in favor of the lighter aluminum core models that sell for less than \$20 in store today. Local Salvation Army, Goodwill stores, Thrift stores, Swap meets are good sources to locate one of these gems. They do showed up on eBay sometimes. Just any popper with a heavy duty cast aluminum chamber insides and 1500 watts is it! I've also seen the identical poppers in 1400-watts version too, and it appeared to be the exact same model, but probably with a re-rated wattage, perhaps? I imagined that the chamber of the 1500-watts model could be used as a great base for custom modifications to make it a 1-lb "hot air profile roaster".

There were other similarly made (OEM) old popcorn poppers with the same core engine parts. If a different brand name popper is found with a cast aluminum chamber has a screen at the bottom, don't worry about the screen: The screen can be removed, revealing the flat bottom and side-fins where the air blown in - same design as a non-screen bottom model. The screen was added to keep the corns from burning on subsequence roasts with an already hot popper.

The old Westbend Poppery might need a minor modification enhancement even though it works just fine without the mod: Breaking off the 1/4" plastic air-guiding fin running vertically insides the bakelite tube (the upper part of the roasting chamber) with a long-nose pliers will help keep more hot air in circles insides the hopper longer and distributing the air flow more evenly. The fin was designed to shoot popcorns up once they were popped, but there is no need for this feature in coffee bean roasting. In fact, with the fin intact, the heat resistant plastic chute will gradually deformed and melted if used with the original Poppery I for extended time, in a spot right above and to one side of the fin, indicating an uneven air distribution. Breaking up the fin is not an easy job since the bakelite is very tough and hard to access due to the long tube and lack of proper tool. I can only break up about 1/3 of the top and bottom parts with the flimsy pliers that I have, but even that seemed help.

I also saw other older cast aluminum poppers with 1150-1250 watts heating coil: One made by Sears (very cool - Space age look with a very elegant chute) and another one also made by Westbend (looks almost identical to the Poppery I on the outsides, but with a different gut): The roasting chambers of these are still made out of cast aluminum but a little smaller than the 1500 watts models and the current popcorn

poppers; so, it can only accommodate from 3 to 4 oz max of green beans at a time. They also did NOT require manual stirring since the same fan (weaker, perhaps to match the lower power train) was used insides. It may also be good for making a dedicated bean cooler because of its stronger fan, by disabling the heating element (as I did and it worked quite well - but I didn't use it any more for this purpose).

I like the Wearever Popcorn Pumper more so than the Westbend Poppery I, since it allows me to fit a glass chimney of an oil lamp perfectly tight into the opening of the popper as the extended upper housing, and thus give me full view of the beans being roasted (just like in the Precision). These oil lamp chimney can be found at target for about \$2-4 each, and must be try fitted like cloth since they are not of the same diameter). The fan in this popper was so strong that it threw the coffee beans 6-8 inches into the air near the end! Either of these poppers can roast 4-5 oz of green beans with ease, without the need for any modification or manual stirring of the beans (max oz may vary with poppers since the thermostats may be set at different temperatures). To roast 5-7 oz of green beans, the thermostats must be defeated. No manual stirring is EVER required, unless I really overload the popper with big and heavy beans ways above 6 oz. I suspected that it might be able to roast 8 oz. of smaller beans and will require short-stirring at the beginning, but I didn't have any need to roast beyond 6 oz yet. My normal batch size is from 4 to 5 oz. The roasting time for 4-5 oz of beans is a consistent 9 minutes for most beans, 30 seconds or so less if I roasted a larger batch. With a 6 oz batch, the beans will pretty much stay contained well insides the roasting chamber; so, there is no spill of the roasted beans will occur when the glass chimney is removed.

For chap catching, the no-cost and minimal-work approach to wrap a piece of porous cloth in a fluffy hot-air-balloon shape extend 6-8 inches above the glass chimney and tied 1" or 2" below the top of the chimney (around its neck) for the Popcorn Pumper (or the soup can for the Poppery I). Chaps will be blown up into the balloon and out to the insides, and then falling down and resting on the outsides edge of the chimney top (or the soup can) and held there in place by the string that tied the "balloon" in place to the chimney. The cloth cover also helps to keep more of the hot air in when beans are moved more freely. This was what I used at the beginning. I later used the chap collector from the Melita coffee roaster that sits it on top of the glass chimney - The two fits perfectly! (The Melita roaster is ways underpowered: It's too bad that they didn't chose one of these two popcorn poppers for the engine, or they would have big success with it, at least outsides of US anyway.)

Either popper is a pleasure to use, and required no extra effort and NO MESS. And I can keep it along with other house hold appliances in my kitchen closets. I roast right under the exhaust fans; so, it doesn't fume up the whole house. Many times, the visual inspection helped me to stop the roast before it got too dark when the crack was not very distinguishable or with decaf beans or with many-origin pre-blends. The overall roasting process was very simple: I just measure and dump the beans in (Tide's detergent measurement scoop is about 2 oz and nice shape), set the count-down timer to 8 minutes for reference, and start watching the roast after the timer rings. Usually in 9 to 9.5 minutes, it's done (20-30 second passed the 2nd crack). I remove the chimney and pour the roasted beans into an opened leafy stainless-steel colander (the type we use to steam vegetables in), slide it in in-front of the cold-air outlet in my refrigerator's freezer and the air will cool off the beans to cold in less than 2 minutes! If the cold-air fan

didn't blow when I put the colander in, I either keeping the frig's door open (or "fan" the door to make the temperature rises sooner) for a short time, or turned up the temperature setting knob till the compressor kicks in (and then remember to turn the temperature knob back down after removing the beans or all the vegetables will turn mushy the next day). As said, a Poppery II can be modified to use as a dedicated bean cooler by disabling the heating coil as an alternative method of cooling beans, but it may not be very easy to modify.

Ultimately, with the thermostats defeated and a lamp dimmer added along with a cheap 500-degree temperature probe, I can control the roast temperature precisely and vary its roast time anywhere from 6 minutes all the way to 20+ minutes if desired, enable me to get the best of both worlds (fast hot air roasting vs. slow drum roasting) on demand. So, the Popcorn Pumper or Popery I with these outfits can out perform many of the current roasters on the market in term of capacity and flexibility. With the ability to start up the roast with a low temperature setting, just to get all the beans with different density to heat up equally to water boiling temperature (to even out the differences in their individual moisture contents), and the ability to bring up the roasting temperature gradually up later, the pre-blended bean mixes came out much more even (more uniform look and taste) than before; so, I rarely single roasted coffee beans for a blend now a day any more, even though this is still an open option.

The Popery I's body style will allow a dimmer to be mounted to it more steadily and permanently with its flat front wall compared to the Popcorn Pumper's diamond shape (sloped) body. Modification is typically easy and simple (required only basic electrical connection knowledge, but exercise plenty of safety-precaution though). Since the fan is driven by direct AC, it can be rerouted without much work, and the dimmer's wires can be tapped straight into the single wire that runs to the heating coil. It took me about hours to make the mod, but half of the time was spent trying to make the unit looks pretty afterward rather than on the work itself. After I made all the modifications to one of my Popcorn Pumpers, I have since do profile roasting for different beans and blends to achieve the result that I could not do with an unmodified popper before (obviously), for both pre-mixed or post-mixed blends. Since the wall of the Popcorn Pumper was sloped, the dimmer was sort of "hang in place" rather than bolted on, even though I can do so with an extra L metal brace installed. The Poppery I probably will produce a more pleasant look after the mod.

Coffee dust and oil can also accumulated in the Chap collector wire mess over time, reducing the escaped air flow, which in turn reducing the intake air flow, resulting in a faster and hotter roast. My popper runs on average about 9 minutes to 2nd crack at the beginning and it dips down to 6 minutes after 6 months of light operation (roasting one or twice a week) from not ever cleaning the chap collector! Once I cleaned up the screen, the roast time went back up to 9 minutes.

About the only problem that I ever encountered was that the fan blade came loose from the turning shaft and made loud noise insides the popper. Once I glued it back in place with epoxy, it worked well again. Another time, I heard very strange noise come from the roasting chamber, and later on found a rock mixed in with the coffee - which obviously caused the strange noise when it hit the glass chimney - a signal to look for non-drinkable stuff in the coffee beans once the roast is completed.

That summed up my experience with home roasting.

Dung Truong

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