

2016 Edition

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LOVE THE SMARTBIN



greentechlife

# How to Set Up & Use Your smartbin

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# Setting up your smartbin



Attach the taps correctly

They come with 2 rubber washers  
& 1 plastic nut

Rubber washers should be on  
both sides of the bin wall



One washer on the outside & one on the inside

Inside, first put the rubber washer in & tighten it with the tap outside against the bin wall

Then insert the nut & tighten it

Make it as tight as possible by hand



**Caution: If you put all the washers & nuts together & try to tighten it, your bin will leak. So do it one at a time, 1st the rubber washer, tighten, then the plastic nut & tighten**



Then fill three fourths of the bins with water & leave on a dry surface for a few minutes

If it leaks, tighten again & test again

Repeat the water test every time you set up your smartbin after Stage II layering

**Caution: If you skip the water test, your kitchen might stink**



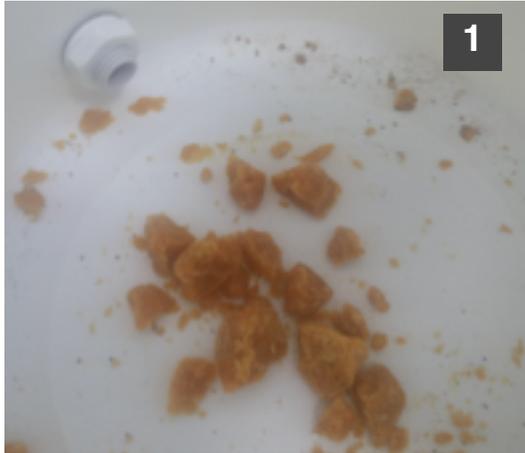
Store your Bio Bloom in air tight containers

Open only one packet at a time

The day you open the last packet, order your next refill pack from our website:

<http://greentechlife.in> or the person you got the smartbin from





Put 3 - 4 tablespoons of jaggery at the bottom of the bin

Then place the strainer inside, with the cutouts at the bottom

Place a single layer of newspaper to cover the holes

Then sprinkle 1 tablespoon of Bio Bloom on the paper

Repeat these steps every time you set up your smartbin after Stage II layering

Close the lid tightly & replace your kitchen's dustbin with the smartbin.

Make sure the tap is closed

Stack one on top of another so the one at the bottom acts as a stand.



**Caution: Smartbins should be stored indoors for a long life & protection from insects**

# What NOT to add in your smartbin



Plastic, paper, electronic waste or non food waste.

Liquids (strain gravies & only add solids)

Garden waste, hard woody shells & stems

Strings from puja flowers

# How to use your smartbin

Everything else goes: veg, non-veg, oily, citrus, dairy, spicy... everything!

Pieces should be smaller than the size of golf balls. Chop the bigger pieces down before adding

Collect all food waste in a plate or bowl, and mix Bio Bloom with a spoon in the ratio 1 handful waste to 1 teas spoon Bio Bloom

Add it to the smartbin and press it down with the smartpress to remove air gaps

For non-veg waste, add 2 tsps

Keep the lid closed tightly at all times

**Caution: There should be no air gap, and Bio Bloom should be uniformly distributed in the waste to avoid stink in the kitchen.**



You can leave the smartpress inside the bin you are filling to avoid cleaning it again and again

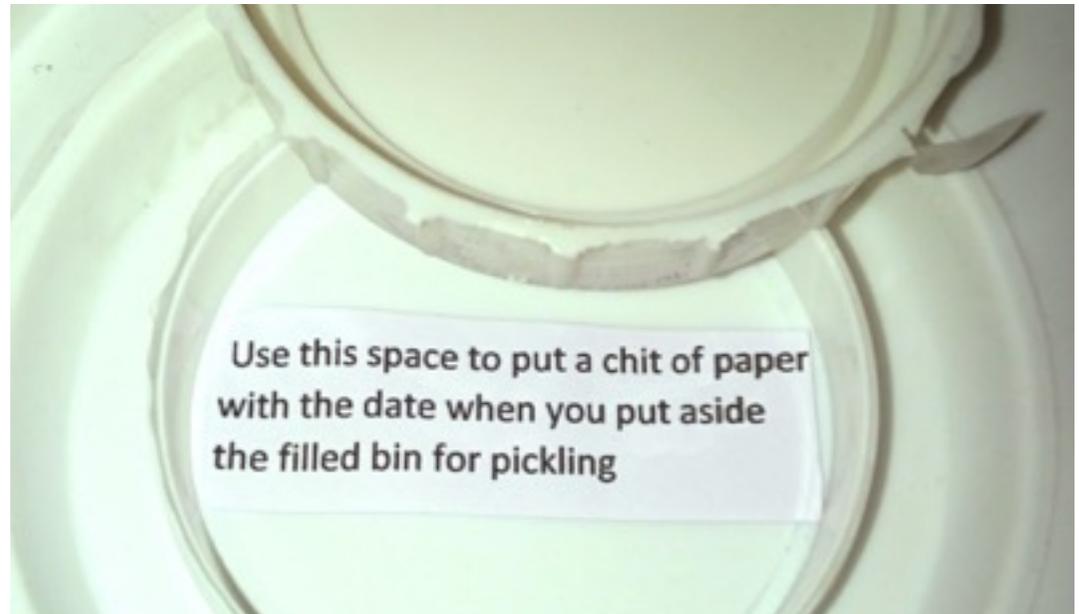
Remember to fill your smartbin all the way to the rim. DO NOT LEAVE AIR GAPS ON TOP

How long it takes to fill doesn't matter, but when full, it should be to the rim

Once full, set aside indoors for 2 weeks to pickle. If you want you can harvest the smartbrew during this time.

Use the 2nd bin while the first is pickling.

Use the cap on the lid for writing down dates in a chit of paper, when you set it aside for pickling



# Smartbrew: The wonder liquid



Harvest your smartbrew after 15 days of starting your bin, & subsequently 2 to 4 times a month, by opening the taps.

Dilute 40 times with water & feed your plants as excellent liquid organic fertilizer

Pour concentrated smartbrew directly into sinks & leave overnight to unclog them

***Note: How long it takes to get your first brew varies, sometimes more than a month. It depends on what went into the bin. So be patient. All the nutrients are preserved in the bin. You'll get to enjoy the goodness as compost if not as brew.***

**Caution: Do not store your smartbrew. It is most effective if used immediately after harvesting. If you must store, then mix with 30% by volume of jaggery and keep upto 3 months.**

# Smartbin Stage II: Layering & composting

After 2 weeks your food waste would have pickled. Visually, it might look like what you put in when you started. But from within, chemically & biologically it would have transformed

Once this is done, drain all the smartbrew for the final time

Then in a separate container, layer the pickle (1 inch max per layer) with 2 - 3 inches of compost layers as shown in the next page

Cover the container with 4 layers of newspaper and tie a piece of cloth on top of it to prevent insects



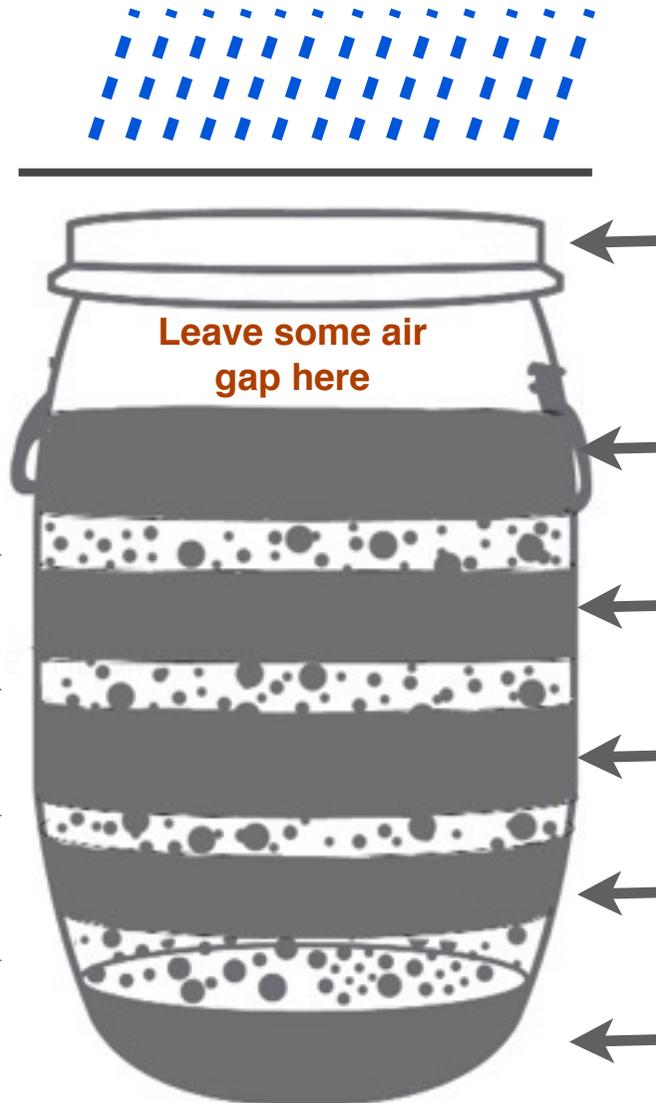
**Note: First time, buy the compost for layering. Subsequently use the compost you generated through your smartbins. If you can't arrange compost, use dry soil, hammered to powder**

# Smartbin Stage II Layering

**KEEP PROTECTED  
FROM RAIN &  
DIRECT SUNLIGHT**

Set aside as shown  
for 3 - 6 weeks. It'll  
have a moist earth  
smell when it's  
done.

Pickle Layers  
(Not more than 1  
inch per layer &  
loosely scattered)



Cover with 4 layers of  
newspaper, then a cloth  
tied securely on top

Top up with Dry compost  
layer 3 - 4 inches &  
ensure there's no pickle  
smell before sealing the  
bin with newspaper.

If it smells, add more dry  
compost

Dry Compost Layers

**Caution: Compost used in the layers above should be dry and fully done.  
The pickle should be loosely scattered and never more than one inch at a  
time.**

# Smartbin Stage II in Bamboo Baskets



1

Take 2 bamboo baskets, 2 feet diameter, 1 foot deep lined with 2 layers of newspaper

Place a 1 foot diameter plastic sheet at the bottom over the newspaper to prevent leaks

Take your smartbin full of pickle, with smartbrew drained completely



2



3

Add 2 -3 inches of dry & completely done compost (or soil or coco peat or potting mix) at the bottom of the basket

Then loosely scatter pickle layer, not more than 1 inch thick

Pickle should not touch the newspaper on the sides



4

**Quantity of dry compost required: about 20 - 25 kgs per smartbin & 15 - 20 kgs per smartbin mini full of pickle. A pair of gloves makes it very easy and quick**

# Smartbin Stage II in Bamboo Baskets



← Then cover with dry & fully done compost and add the next pickle layer as shown in the previous page.

Continue layering till all the pickle goes in, and then bury the pickle with enough compost to avoid any smell of pickle whatsoever →

Make sure there's a little air gap, by not filling the baskets all the way to the top. ↗



← Seal with at least 4 layers of newspaper and then secure with a piece of cloth (any cloth will do)

Set aside away from rain for 3 - 6 weeks and your compost will be done! →



**Note: First time buy the compost for layering. Subsequently, use the compost you generated through your smartbins. If you can't arrange compost, use dry soil, hammered to powder for the first time**



**AND VIOLA!  
YOUR  
COMPOST  
WILL BE  
READY**

# Other examples of containers for Stage II

Whatever container you choose, do not let the pickle touch the newspaper on the sides, to keep the paper dry & prevent insects

Newspaper is not required on the sides for terra cotta pots, plastic drums, or plastic buckets.

In terra cotta pots and cardboard boxes, avoid the pickle touching the sides

Newspaper is needed on the sides, in all forms of baskets (bamboo or plastic).



# Stage II Layering: Other Options

**Note: Unlike stage I, Stage II is an aerobic stage (needs air).** While the video on our website, and images in the previous pages show the layering being done in bamboo baskets, the principles applied in other containers are the same.

## Precautions:

- ☑ Soil/compost/coco peat/potting mix used to layer should be dry
- ☑ Physical barrier for insects
- ☑ Loosely scattered pickle layers not more than one inch at a time
- ☑ No smell once you are done layering (before sealing the container)
- ☑ Keep dry and in shade



## CARDBOARD BOXES:

Recycled carton boxes from a grocery store near by, are very cheap. Do not use if the box has a plastic laminate

### PRECAUTIONS:

-Place at least 8 layers of newspaper inside, including top before

sealing.

- Place a plastic sheet at the bottom (on top of the newspaper layers) to arrest any leachate, from leaking.
- Every opening and corners should be sealed with tape.
- Compost/soil/coco peat/potting mix should be dry.
- Avoid the pickle touching the newspaper on the sides.



## TERRACOTTA POTS:

### PRECAUTIONS

- Plastic sheet at the bottom (inside the pots) to arrest any leachate.
- Avoid the pickle from touching the pot on the sides.
- Top sealed sealed with 4 - 8 layers of newspaper with tape.
- Compost/soil/coco peat/potting mix should be dry.

# Stage II Layering: Other Options

## PLASTIC CONTAINERS:

If you are using plastic containers, the following are the differences:

### Things you don't need to do in plastic containers/buckets/drums

- You don't need to cover the sides with newspaper
- You don't need a plastic sheet at the bottom to stop any leaks
- You don't need to make holes separately

### Things you must do if you are using plastic containers/buckets/drums

- Place an inverted plastic basket or plastic colander at the bottom of the drum, and cover with a few layers of newspaper as shown, to create an air pocket.
- Leave an air gap on top (about 4 inches) - don't fill it all the way to the top
- Seal the bin with 4 layers of newspaper, and a piece of cloth on top of it to protect the newspaper from tearing or damage. This way the container can breathe from the top.
- If you choose to use a lid then again the lid should be tight enough to stop insects from entering and laying eggs, and that lid must be opened, and closed after shaking/wiping off liquids condensed at the bottom of the lid to allow the system to breathe.
- You should use about 25 kgs of dry compost for the layering per smartbin 20L instead of 20 kgs.

Place an inverted plastic basket or plastic colander at the bottom of the drum, and cover with a few layers of newspaper, to create an air pocket.

**How the plastic containers should be sealed at the top**



# Getting the best out of your smartbrew

Smartbrew is the liquid that you drain out about 2 - 4 times a month from your smartbins. It usually takes about 10 days (sometimes longer - up to 20 days) to get the first harvest of brew once you start using your smartbin. It has a strong and pungent smell. Smartbrew constitutes of a live culture of microbes. They should be used immediately after harvest for best results. Storing them cause the microbes to die, and hence lose their effectiveness.

The color, quantity and smell varies from time to time & from family to family. So don't be alarmed when you don't get your smartbrew for a while. Smartbrew serves 2 important purposes. One, it is an excellent liquid organic fertilizer and two, it is an excellent non-chemical, non-toxic drain un-clogger.

Depending on which purpose you use your smartbrew for will decide how you drain it.

## **LIQUID ORGANIC FERTILIZER**

- Dilution ratio: 1:40
- Application: Once a week on plants that are showing nutrition deficiency or not growing well
- Quantity: 350ml to 400ml of the diluted brew, per square feet of soil
- Caution: Do not use on the foliar, only pour directly into your soil, without spreading it too much
- Caution: Use immediately after harvest - do not store.

# Smartbrew: Liquid organic fertilizer

## How to harvest the brew

To use your brew as fertilizer place your smartbin on the kitchen counter (or any other raised surface). It could also be your 2nd bin.

Place a bottle (any repurposed soft drink bottle, water bottle etc. will do) underneath the tap with the mouth of the bottle pushed up against the tap nozzle and then open the tap. This ensures the liquid doesn't spill. Remember to close the tap once the draining is over - this is a common mistake most people make and that causes a stink in the kitchen.

Once you have collected the liquid, close the cap of the bottle and carry it to your garden. This will stop the brew from leaving a trail of smell in the house! Dilute the brew with water, 30 times the volume of your brew. (1:30 ratio). Then use one mug (approx 750ml - 800ml or 3/4th of a 1 liter bottle) per square feet of your soil/potting mix. Pour directly into the soil near the roots.

Do not spray on the leaves as it will stink and also attract pests. Limit application of the brew to once a week only to start with. Too much of the brew can kill your plants.

For best results use the brew in the above mentioned dilutions on your plants that are not doing well, or showing nutrition deficiency. If you use all your brew in a larger dilution (say 1:100) and give to all your plants, you won't be doing much of a difference to any of them.

## Why this works so well

Smartbrew is full of beneficial microbes that are constantly breaking down the food particles/molecules to their most basic form that plants can easily take up. Since your food waste is balanced (i.e. it has all kinds of ingredients), the final output is excellent and balanced nutrition for your plants.

# Smartbrew: Drain un-clogger

## Method 1

Do this at night before going to sleep. Directly place your smartbin in your sink. Then open the tap. Once the entire brew is drained out, remember to close the tap and remove your bin. Do not use the sink overnight. Next morning your pipes/drain will be clean!

## Method 2

Directly place your smartbin in your sink. Open the sink faucet (water tap) with full force, and only then open the tap of your smartbin. This will ensure the water will take the brew down like a toilet flush, and you won't have to smell the brew too much. Once the entire brew is drained out, remember to close the smartbin tap. Doing this regularly will keep your kitchen pipes clean, and if every family is draining the smartbrew into their sinks, our lakes, water bodies and sewage system will start to get clean. This is because the smartbin microbes will overpower the pathogenic ones present in our sewage system!

## Why this works so well

The microbes present in your smartbrew eats away the grime that clogs your drains!

# Avoiding maggots in your smartbin

Maggots are the larva stage of the black soldier fly (BSF). While they play an important ecological role, they do cause your bins to smell and disgust most people. Listed below are some simple precautions to avoid them. But before that let's understand them first!

Some facts about the black soldier fly maggots:

- They need 4 things to exist: a) Rotting/decomposing food, b) Smell to attract them, c) Moisture to move around and d) Some sort of access to the food source
- They get attracted by smell of food/food waste and the flies lay eggs next to the source. Each cluster of eggs are about one or two rice grains and contain about 800 to 1000 eggs! Avoid the smell, and you avoid the maggots
- They need some moisture to move around. If your compost/soil is completely dry and this dry layer is thick, it is very difficult for the little maggots just hatched to reach the food source and grow into maggots.
- They are voracious eaters of organic waste - no limits, they eat everything that begins to rot!
- The adults do not have mouth organs. They only live for a few days and live outdoors, mate, lay eggs and die. It is at the maggot stage that they do all their eating. Since they don't eat they don't spread diseases
- The maggots reduce disease causing housefly's population by competing with them
- 85% of what they eat (i.e. your food waste) turns to their body weight! 5% is liquid excreta, and 10% is solid excreta (manure/compost). So if your goal is to get a decent quantity of compost, BSF might not be the best method. Their excreta also causes your bins to stink
- If one has poultry, they are a great source of nutritious feed for the birds (chickens/hens)

# Avoiding maggots in your smartbin

## SO TO AVOID MAGGOTS - AVOID SMELL, MOISTURE & CREATE A BARRIER TO ENTRY

### Avoiding maggots in stage 1 in the smartbin itself

1. Smartbins are meant to be indoors. If you keep them outdoors, you'll have maggots in your smartbins. So find a place indoors. If you can not for some reason, make sure you seal the top of the bins with a plastic sheet and then tightly close the lid thereby creating a barrier to entry, and at the same time avoiding any smell from coming out. Make sure the taps are properly closed and are not dripping smartbrew. The smell of the brew will attract the BSF
2. Do not let food waste collect for long durations outside before putting into your smartbins.
3. Avoid rotting food, or anything similar that may attract the BSF anywhere near your smartbins

### Avoiding maggots in stage 2

1. Ensure the compost/soil you use to layer is completely dry and completely done. If it has moisture, dry it out in thin layers on newspaper.
2. After you finish layering, check for smell of pickle. If it is there, put more dry compost/soil on top to suppress the smell completely
3. Seal your containers with at least 4 layers of newspaper, so the contents can breathe but any smell gets arrested while creating a physical barrier for the BSF to go inside and lay eggs. If your container has holes, cover them from inside with newspaper (at least 4 layers)
4. Keep your stage II container completely dry and protected from rain and sun

# Avoiding maggots in your smartbin

What to do if you find maggots

1. Option one is to allow them to be there till they finish all the food, and keep the containers sealed for about 6 to 8 weeks so when they do turn into flies, they don't get to escape and reproduce. If they do reproduce, there should be no more food (pickle) left for the little ones to survive. So basically you do nothing for 2 months.
2. Option 2 is to discard the contents under a tree

## Fruit Fly Maggots

Fruit fly maggots are usually found on the inside walls or the bottom of the lids of your smartbins. They can not survive inside and hence are trying to come out of the bins.

The reason they appear is because their eggs were already present in the food waste before it went into the bin. In order to avoid them, the best course of action is to avoid food waste (or even vegetables) lying uncovered.

If they do appear inside your smartbins, just rinse off the lid from time to time. They'll anyways not survive inside the bin and will get composted along with the rest of the food waste.



# Tips for holidays

Here are the two simple steps before going out on a holiday:

- Drain the liquids
- If your bin is not full, place a plastic sheet (reuse any plastic bag) and press it down on the top layer of waste. This will ensure the top layer doesn't get exposed to air for prolonged periods and the microorganisms present naturally in air do not spoil the pickle.
- If your bin is full, just set it aside like you'd normally do

That's it! Enjoy your holidays :-)

**Note:** If you are taking too long to fill your bins, follow this same process. Fill your bins only for 3 weeks, and put the plastic sheet on the top layer and set it aside. Start your 2nd bin. This way your bins won't get too heavy and your cycle will be faster!

# Caution & Troubleshooting

## Caution:

1. Do not skip the water test while setting up your smartbins
2. Always remember to press down your waste before sprinkling Bio Bloom
3. Only add one handful of waste at a time
4. Do not add liquids, hard woody shells, or garden waste to your smartbins
5. Keep the lid closed tightly at all times
6. Do not forget to close the taps after draining
7. Smartbins should be stored indoors
8. In stage II only use fully done & dry compost
9. Cover all openings in your Stage II container with double layer of newspaper
10. Keep Stage II containers protected from rain and direct sunlight.

## Troubleshooting Stage I

### Bin is smelling:

If your bins are smelling, it means either of 3 things:

1. There is air in the bins between food particles (you are not pressing down enough), or
2. Microbes are not being distributed evenly (you are adding more than one handful of waste at a time) or
3. The tap is open/leaking

## Troubleshooting Stage II

### Compost is smelling:

If your compost is smelling, it means either of 2 things:

1. The compost you mixed with was not dry or was too less
2. The compost you mixed with was not fully done  
Use dry fully done compost for layer to avoid these mishaps

# Caution & Troubleshooting

## **Smartbrew not draining causing the bin to smell**

There are times the brew doesn't drain through the pickle layers in the smartbin. In such cases, it starts to ooze out from the top while pressing down the waste with the smartpress. It also causes the bin to smell.

Do not panic as this doesn't happen every time. If it does happen to you, just take a few layers of newspaper and place it on the top layer of the waste. Then press down with your smartpress to absorb the moisture into the paper. Keep doing this till the brew stops appearing after pressing.

Discard the newspaper.

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error free composting!

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