

ReLEAF Farmer's Guide

1. Welcome to ReLEAF

ReLEAF makes a liquid that helps protect your crops from stress like heat, drought and salty soil. The helpful bacteria stay sealed inside a cartridge. You never touch them. Only the protective liquid comes out.

Your job is simple:

1. Make hay medium and pour it in.
2. Check the machine once a day.
3. Collect the protective liquid.
4. Press **Self-Clean** when the screen asks for a medium change.

Our job: we install the machine, deliver new cartridges and solution packs, take the old ones back, and take the whole machine back if anything goes wrong. Anything that could carry live bacteria comes back to us. You never have to clean it or throw it away.

Words used in this guide

Word	What it means
Hay medium	The food for the bacteria. You make it from hay and water
Fill port	The opening on top where you pour in hay medium
Cartridge	The sealed part that holds the bacteria and the filter. Only we open it
Solution pack	A sealed bottle that keeps the medium balanced. We bring and swap it
Waste bottle	A sealed bottle where old medium goes after Self-Clean. We take it back
Collection bottle	Where the clear protective liquid collects. This is your product
Screen	The touch screen that shows readings, notices and buttons

Word	What it means
Self-Clean	A button that cleans out the old medium so you can add new medium

Read Section 2 before you use ReLEAF for the first time.

2. Safety first

One rule covers almost everything: **if it is sealed, leave it sealed**. The cartridge, the solution pack and the waste bottle only ever come back to us closed.

Always

- Switch on and off in the right order (Section 4). The wrong order can break the control board.
- Keep water and spills away from the control board and wires on the top shelf.
- Keep the power plug where you can pull it out quickly.
- Use clean hands and a clean jug when you pour hay medium.
- Close the fill port cap after pouring.

Never

- Never open the cartridge, the solution pack or the waste bottle.
- Never unscrew tubes, sensors or connectors. Only the fill port, the collection bottle and the screen are yours to use.
- Never pour anything into the fill port except fresh hay medium made as in Section 5.
- Never use ReLEAF liquid for food, drink, people or animals.
- Never change or unplug any wire while the power is on.
- Never put your fingers near the moving valves or the pump while it is running.

If something goes wrong

What happens	What to do
Liquid leaking from the machine	Press Emergency Stop on the screen. Switch off the power. Do not wipe it up with bare hands. Call us, and we will come and clean it. The bioreactor already has multiple existing failsafe mechanisms, so that Emergency Stop button is just an extra layer of protection.
Burning smell, smoke or a hot board	Switch off the power first, then unplug the board. Do not touch until cool. Call us
Collection liquid looks cloudy	Press Emergency Stop . Do not use the liquid. Call us, and we will take the machine back.
Liquid from inside the machine on skin	Wash with soap and water
Liquid from inside the machine in the eyes	Rinse with clean water for 15 minutes. See a doctor if it still hurts
A red warning bar on the screen	Follow Section 8

When in doubt, stop the machine and call us. We will collect it — you never need to clean or repair it yourself.

3. The parts you'll use

We install everything. These are the only parts you need to know.

Part	What it does	You will...
Touch screen	Shows readings, notices and buttons	Look at it every day
Fill port	Opening for hay medium	Pour in fresh medium when asked
Collection bottle	Collects your protective liquid	Empty it before it fills
Self-Clean button	Cleans out old medium before a refill	Press it when the screen asks

Part	What it does	You will...
Emergency Stop button	Stops everything at once	Press it if anything leaks or looks wrong
Power switch and plug	Powers the machine	Switch on and off in order
Cartridge	Holds the bacteria and filter	Leave it alone. We swap it
Solution pack	Keeps the medium balanced	Leave it alone. We swap it
Waste bottle	Holds old medium after Self-Clean	Leave it closed. We take it back

Everything else (pumps, valves, tubes, sensors, wires) is ours to look after.

4. Setting up

We install and test the machine for you, put the first cartridge and solution pack in, and show you how to use the screen.

Keep it in a good spot

- Indoors, out of direct sun and rain, on a flat, steady surface.
- Keep the area around and under it clear, so you can see any leaks.
- Keep the power plug easy to reach.
- Do not move the machine yourself. Call us if it needs to move.

Switching on (do in this order)

1. Plug in the control board's USB-C cable first.
2. Wait until the screen has fully started.
3. Then switch on the 12 V power supply.

Switching off (reverse order)

1. Switch off the 12 V power supply first.
2. Then unplug the control board.

If the screen does not start: unplug the board, wait 10 seconds, plug it back in, and follow the ON order again. If it still does not start, call us.

Checking the screen

The status line at the top must show **Connected** and **MCU: OK**. If it does not, do not use the machine — call us. The screen can be switched between English and Traditional Chinese with the language button at the top right.

5. Making and adding hay medium

Hay medium is the bacteria's food. You make it at home and pour it in. That is the only thing you ever put into the machine.

Making hay medium

1. Wash your hands and use a clean pot and jug.
2. [Team to confirm — amount of hay and water, e.g. grams of hay per litre.]
3. Boil for [Team to confirm] minutes.
4. Strain out the hay through a clean cloth.
5. Cover and let it cool to room temperature. Never pour in hot medium.
6. Use it the same day. [Team to confirm — how long it keeps.]

Adding hay medium

Only add medium when the machine is new, or after **Self-Clean** has finished (Section 9).

- ☐ The screen shows **Ready for new medium**.
- ☐ Open the fill port cap.
- ☐ Pour the cooled medium in slowly, up to the **FULL** line. Do not overfill.
- ☐ Close the fill port cap tightly.
- ☐ Press **Start** on the screen.
- ☐ Check the flow reading starts moving within a minute.

6. Daily checks

Once a day, spend two minutes on these checks. The machine looks after everything else by itself.

Check	Good	If not...
Floor and surface under the machine	Dry	Press Emergency Stop and call us

Check	Good	If not...
Screen status line	Connected and MCU: OK	Call us
Notices on the screen	None	Follow the notice (Section 8)
Flow reading	Moving, about the same as yesterday	Section 11
Collection bottle	Less than three-quarters full	Empty it (Section 7)
Collection liquid	Clear	Cloudy: press Emergency Stop and call us

You do not need to top up, adjust pH or touch any settings. When the medium is used up, the screen will tell you (Section 9).

7. Collecting the protectant

The clear liquid in the collection bottle is your product. Every cartridge is tested by us before delivery, so the filter is checked before it reaches you.

Emptying the collection bottle

1. On the screen, press **Close collection**. Wait for the valve to close.
2. Unscrew the collection bottle and put on its cap.
3. Screw on an empty, clean collection bottle.
4. Press **Open collection**.

Good liquid vs. bad liquid

- Good: clear, with nothing floating in it.
- Bad: cloudy, or the screen shows a **Filter alarm**. Press **Emergency Stop**, do not use the liquid, keep the bottle capped and call us. We will collect the bottle and the machine.

Using it on your crops

Apply ReLEAF protectant only as shown on the product label and only where it is approved for use in your area. [Team to confirm — how to dilute, how much per area, how often, which crops, how long the liquid keeps and how to store it.]

8. Notices and warnings on the screen

The machine protects itself. When something is wrong it stops the pumps and shows a notice. Some notices are yours to act on; the rest mean "call us".

Notice	What it means	What you do
Time to change medium	The hay medium is used up	Press Self-Clean , then add new medium (Section 9)
Collection bottle full	The bottle needs emptying	Empty it (Section 7)
Cartridge due soon	Your next cartridge swap is coming up	Nothing. We will contact you to book a delivery
Solution pack low	The balancing solution is running out	Nothing. We will bring a new pack
Waste bottle full	Old medium needs collecting	Do not run Self-Clean again. Call us to collect it
Red Pressure warning	Something is blocked	Press Emergency Stop and call us
Filter alarm	The filter may be damaged	Press Emergency Stop , do not use the collection liquid, call us
Any other warning	—	Call us. Do not try to fix it yourself

Never change settings or limits to make a warning go away.

9. Changing the medium with Self-Clean

When the screen shows **Time to change medium**, the machine cleans out the old medium by itself. You never drain, pour out or touch old medium.

Step by step

1. Make fresh hay medium and let it cool (Section 5).
2. Empty the collection bottle (Section 7).
3. Press **Self-Clean** on the screen, then **Confirm**.

4. Wait. The machine makes the old medium safe and pumps it into the sealed waste bottle. Do not open anything while it runs. [Team to confirm — how long Self-Clean takes.]
5. When the screen shows **Ready for new medium**, pour in the fresh medium and press **Start** (Section 5).

If **Self-Clean stops halfway** or shows an error, do not open the fill port. Call us.

Storing the machine when not in use

- Run Self-Clean first, then switch off in order (Section 4).
- Wipe only the outside with a dry or damp cloth. Keep water off the screen and board.
- Keep it dry and out of the sun.
- If you will not use it for more than [Team to confirm] weeks, call us — we may collect the cartridge.

10. Cartridge swaps and take-back

We deliver new parts and take the old ones back on the same visit. It is always a one-for-one swap.

When we deliver...	We take back...
A new cartridge	The used cartridge, still sealed
A new solution pack	The used solution pack, still sealed
An empty waste bottle	The full waste bottle, still sealed
A replacement machine	The broken machine

Before a delivery visit

- Run **Self-Clean** if the screen asks you to, so the old medium is in the waste bottle.
- Do not take anything out yourself. Leave the used cartridge, pack and bottle in the machine. We remove them.
- Have fresh hay medium ready if we ask you to.

When the machine stops working

Press **Emergency Stop**, switch off in order, and call us. We will collect the whole machine, clean it, and bring a working one. Never throw away any part of ReLEAF yourself — not even the screen or the wires.

11. Problem solver

If your problem is not here, or the fix does not work: press **Emergency Stop**, switch off in order, and call us.

Problem	Try this
Screen does not start	Unplug the board for 10 seconds. Plug in the board first, then the power. Still dead: call us
Buttons do nothing	Switch off in order, wait 10 seconds, switch on again. Still stuck: call us
Flow reading shows zero	Check the screen for a notice. If medium was just added, wait 5 minutes. Still zero: call us
Ready for new medium never appears after Self-Clean	Do not open the fill port. Call us
Medium spilled while pouring	Fresh hay medium is just food — wipe it up normally. Spill from inside the machine: call us
Collection bottle fills slowly	Normal as the cartridge ages. If it stops completely, call us
Collection liquid is cloudy	Emergency Stop , do not use it, call us
Any leak from the machine	Emergency Stop , switch off, call us

12. Frequently asked questions

How do I replace the medium? Wait for the **Time to change medium** notice. Make fresh hay medium and let it cool. Press **Self-Clean** and wait for **Ready for new medium**. Then pour the new medium into the fill port and press **Start**. You never pour out old medium — Self-Clean does it for you (Section 9).

Where does the old medium go? Self-Clean makes it safe and pumps it into the sealed waste bottle. We collect the waste bottle on our next visit. Never open it.

How do I replace the cartridge? You don't. When the screen shows **Cartridge due soon**, we contact you and bring a new one. We take the old cartridge out and put the new one in on the same visit.

How do I replace the solution pack? You don't. When it runs low, we bring a new one and take the old one back.

Do I ever need to handle bacteria or chemicals? No. Everything that could carry live bacteria, and every chemical, stays sealed and comes back to us. Your only job is hay medium, the collection bottle and the screen.

What if the machine breaks? Press **Emergency Stop**, switch off, and call us. We take the whole machine back to clean and repair it.

Can I put something other than hay medium in? No. Only fresh hay medium made as in Section 5.

What do I do with the protective liquid? Use it on your crops as shown on the product label (Section 7).

13. Getting help and record sheet

Your ReLEAF support contact

Name	
Phone / LINE	
Local extension station	
Usual delivery and pickup day	

Machine record (installer fills this in)

Item	Value
Date installed	
Machine number	

Item	Value
Screen address	
First cartridge number	
Installed by	

Swap log (we fill this in at each visit)

Date	New cartridge number	Old cartridge taken back?	Solution pack swapped?	Waste bottle taken back?

This guide is a simplified version of the ReLEAF Bioreactor User Manual. Technicians should use the full manual.