



Café Farm
Operation Manual
Mini Plant Factory
Model : PARUS Café farm Ver 1.0



2010

PARUS Co., Ltd





Café Farm Operation Manual



1. Safety tutorial
2. Components names and specifications
3. Installation
4. Plant growing
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1. Safety tutorial

Café Farm



Before you use this product, you need to read through the criteria listed below.

1. Do not change the contents or fixture of this product.
2. When you are cleaning, sterilizing or moving this product, please shut off the power supply in advance.
3. It should not be used by children, disabled person and other people who do not have enough knowledge about the product .
4. Do not modify this product unless the supplier recommend to do so.
5. Do not use this product at the un-recommended places (out door, closed places)
6. When electric connectors (power cord, switches) are wet, you need to stop the operation.
7. Only use the supplier provided components for the security of this product.
8. For repairing damages, only the service person from the supplier or other qualified specialists are allowed to repair.
9. Electric wiring has to follow the local regulations.
10. Do not apply un-recommended random plants.
11. If the product has water leaking or operational problem, please cut off the power supply and talk to the call center.
12. Do not modify or disassemble the controller device.
13. Please read every notice and tutorials before you start to use.

Service call center: 041-566-5323, 070-8677-4967, www.growlight.co.kr



2. Components name



① LED Growlight

LED growlight is an artificial light which is able to replace the sun light. It is composed with the most efficient wavelengths. Moreover, the luminosity and the wavelengths are adjustable simply with using switch on the both upper and lower shelf.

② Aeroponic Growing tray

This device holds the plants to grow properly and also supplies nutrient solution to the plant roots. Aeroponic system optimizes the growing condition to increase the growing efficiency.

③ Controller device

Controller device controls the growlights, nutrient solutions, sterilizer, heat-sink devices systemically.

④ Nutrient reservoir

Device for nutrient water supply.

⑤ Air Pipe

Air circulating channel to release the heat out from the LED growlights.

⑥ LED wavelength adjustment switch

This is the switch for adjustment of LED growlights.

⑦ Exterior



2. Components name

Controller Box



- ① **LED Growlight timer**
Set up ON/OFF time of LED Growlight.
- ② **LED Growlight manual switch**
The main switch of the LED Growlight
- ③ **Aeroponic control panel**
Set up the term of sprinkle time.
- ④ **Aeroponic switch**
Main switch for ON/OFF the nutrient solution supply.
- ⑤ **UV sterilizer control panel**
Set up the UV sterilizing and filtering.
- ⑥ **Heat-sink Fan switch**
Switch for heat releasing from the LED lights.
- ⑦ **UV sterilizer switch**
Main switch for ON/OFF the UV sterilizer.



2. Specification



Specification

Dimension : W 1,380mm X L 600mm x H 1,700mm

Lighting: LED Grow Light (Red, Blue – separately operates)

Wavelength : 430nm, 450nm, 640nm, 660nm

Upper shelf 280 umol, 200Watt / Lower shelf 280 umol 200Watt

Growing plants : Lettuce, Herbs, Spinach, Ginseng, Strawberry,
Sprouts, Radish, Parsley, Broccoli and etc..

Watering : Aeroponic system

Fixture : Specially coated Aluminum Profile

Environment : Grow under the normal indoor environment
of temperature, humidity and CO2 (400PPM)

Control function : Auto lighting, Auto aeroponic
and wireless radio control (Optional)

Growing tray size : 1.56 m2 (Upper - 0.78m2, Lower - 0.78m2)

Capacity : 110 plants(Upper – 55plants, Lower - 55plants) 35 days

Hygiene : UV water sterilizing (Colon Bacillus and harmful bacteria)



3. Installation



Wheel with locker

Installation procedure

① Move the Café farm to the suitable place.

Installing place should be indoor and the temperature is within 17 to 26 Celsius degree.

The most ideal environment: 18 to 24 Celsius degree, 70% of humidity.

Caution : If the temperature and the humidity is too high, plants may stop growing or growing slower.

② Lock down the wheels to fix the product at the suitable place.

③ The product should be installed on the flat ground.

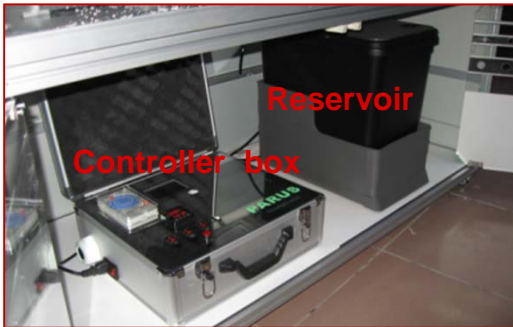
If the horizontality is not correct, it may cause the water leaking or the drawer creaking.

④ Check all the connecting parts of each components.

Direction : Connect the control box → Check the water supplier in the reservoir and the connectors → Check the water supplying hose and connecting parts → Check the connecting parts and the nozzle position in the growing tray → Check the net pot



3. Installation



⑤ Fill up the water in the reservoir.

Caution : The product will suffer a serious damage, if you operate the water supplying without water in the reservoir.

It is better not to move out the reservoir from the drawer. Please arrange another water basket (25L) to fill out the reservoir.

Please do not connect the main power , if there is some water on the controller box or on the plug. Dry them completely before use.

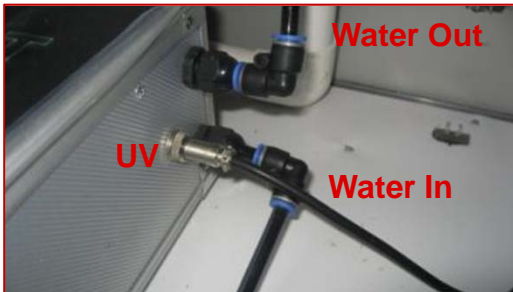


⑥ Connect the power.

Caution : Please turn off all the switches before you connect the Power line. No water on the controller box and the plug. Please confirm again for your safety.

⑦ Turn on the switch of the controller box.

Caution : Please make sure if all the switches (LED, Aeroponic, Heat-sink) in the controller box are turned off



⑧ Turn on the LED lighting and Heat-sink switch.

Turn on the LED lighting switch together with the Heat-sink switch to release the heat from the LED lighting.

If the LED lightings are not turning on, check the sub-switches on the upper and lower shelves whether they are ON or OFF.

⑨ Turn on the Aeroponic switch.

Check if the aeroponic system (mist spraying from the nozzle) in the growing tray is working properly.

Caution : Before you operate the Aeroponic system, please reconfirm if the Net Pot are inserted correctly on the Growing tray.

Check if there is water leaking from any part of the product. Especially the nozzles, hoses, trays. As soon as you find any problems, turn off all the switches and make a phone call to the supplier.



⑩ Turn of the UV switch.



4. Plant growing

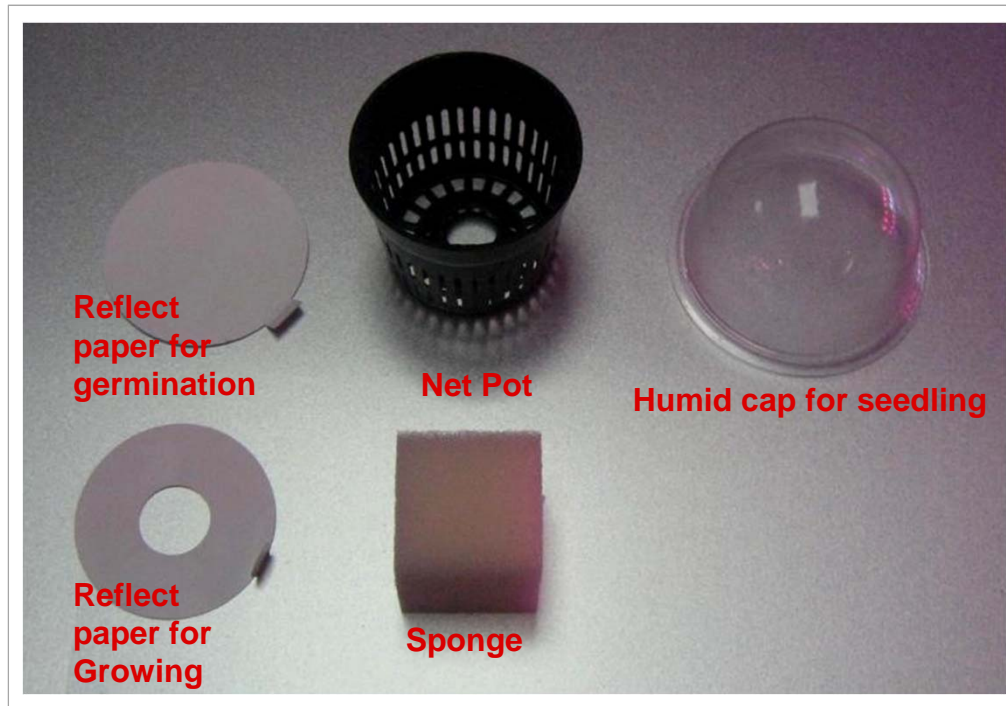


- 1) Growing kits
- 2) Water preparation
- 3) Planting
- 4) Germinate, Raise seedling and Growing period
- 5) Harvest
- 6) Cleaning and sterilizing



4. Growing method

1) Growing kits



- Net Pot: 110pcs, +5 supplement(reusable)
- Reflect paper for germination: 120pcs
- Sponge: 330pcs (for 3periods), +15 supplement
- Reflect paper for growing: 110pcs, +10 supplement
- Humid cap for seedling : 120pcs
- Nutrient solution 1 : for 3 times use (water 25L)
- Nutrient solution 2 : for 3 times use (water 25L)



4. Growing method

2) Water preparation



① Prepare the nutrient solution for the plants.

Use the supplier provided nutrient solution kit only.

Caution : If you use the other nutrient solution, it may cause problems in plant's growing.

② Prepare the water.

We recommend tap water for use. Underground water or softened water may cause abnormal growth of the plants. The water amount for using Café Farm is 25L. Fill up the reservoir with using other water basket, and add to absorb the nutrient solution in the water. 20 ~ 24 Celsius degree is the appropriate temperature for the water, and the pH has to be maintained at 5.5 ~ 6.5.

The provided liquid fertilizer not only contains the nutrients but also the pH mediator.

Caution: Please keep the controller box and electric cord away from water when you apply water in the reservoir. Make sure you unplug the cord and dry properly, if water pored on the device by mistake.



권장 물높이 2/3 이상

최저 물 높이



4. Growing method

3) Planting



① Soaking



② Sponge



③ Planting 1



③ Planting 2



④ Prepare germinating

① Prepare the seeds and soak them in to the water for 24 hours.

Soaking them in water helps them to germinate easier.

② Prepare the sponge for germination.

The sponge for germination has groove to let the roots come out easily. Put the sponges in to the water and repeat squeezing until the sponges absorbed water enough. You need to use the purified water or the tap water which was left in the air for about 24hours.

Caution : If the sponges are not wet enough, the germination will not be coming in to action.

③ Plant the seeds in the sponges.

Plant 2 or 3 seeds in the wet sponges.

Caution : If the seeds are too small (ex. Lettuce), do not plant the seeds too deep inside. Otherwise, the seeds will be rotten.

Small seeds : 2mm ~ 3mm

Big seeds : 4mm~6mm

④ Put the sponges in the Net pot, and cover them with reflect paper for germination.

Reflect paper will block the lights to help the germination.

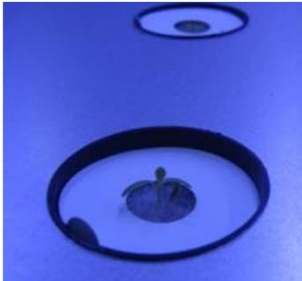
Remove the reflect papers after 2~3 days, and replace them

with the reflect paper for growing together with the humid cap.

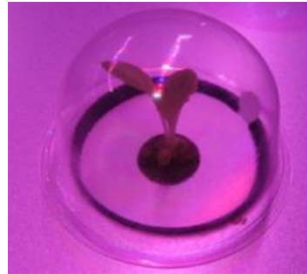


4. Growing method

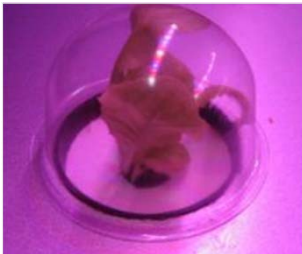
4) Germinate, Raise seedling and Growing period



Germination



Humid cap



About to remove the humid cap



Growing period



Wavelength On/Off Switch



① Germinating periods (2~3 days)

Germination will be done in 2~3days since the seeds are planted and covered by the reflect paper.

Caution : The germination may not arise, if the seeds are planted too deep in the sponges or the sponges don't absorb enough water.

② Rising seedling period (2 weeks)

Remove the reflect paper after the germination is done. Instead of it, place the reflect paper for growing and cover with humid cap to maintain the humidity for healthy growth.

If the germinated plants are more than 2~3, get rid of the weak plants and leave one healthy plant. During the rising seedling period, turn on the blue color lightings to grow them. The wavelength emitted from blue LEDs are ideal for healthy growth of the sprouts.

Please remove the humid caps when the plants are about to touch the caps.

Caution : Please turn off the LED lights before you remove the humid cap from the plants.

③ Growing period (2 ~ 3 WEEKS)

After remove the humid cap, the plants are turning into the growing period. During the growing period, turn on the both red and blue LED lightings. 2 weeks after the germination, supplementary add some liquid fertilizer mix with certain amount of water.



4. Growing method

5) Harvest



① Prepare to harvest.

You could cut off the leaves with scissors or hands. Otherwise, you also can just pull out the whole plant.

During the harvest period, you can choose the lighting colors either blue or red.

For thicker and healthy plants: Blue lighting

For soft and crispy: Red lighting

Every single kits (humid cap, reflect paper, net pot) are able to be reused except the sponges.

Caution : high concentration of liquid fertilizer and abnormal pH rate causes tip burn symptom. In this case, you need to add more water to reduce the concentration of the liquid fertilizer and turn down the strength of the LED lighting.

If the liquid fertilizer is not applied enough, the leaves are going to be changed to yellow color. In this case, you need to add more liquid fertilizer as soon as possible, but the result will not appear immediately.

In case the pests come up on the plants, pull out the whole net pot and rinse it with running water.



4. Growing method

6) Cleaning and sterilizing



① Clean up the trays after harvest

First, clean up the net pots and sun dry them.

Wash out the Growing Tray and the cover and wipe out the water with towels.

Cut off the power and wash the filter in the UV sterilizer

Caution : Please unplug the power line before you start to clean.

② Sterilizing

It is better to sterilize the devices after finish the harvest.

Fill up the reservoir with water about 2/3. Add a bit of disinfectant and operate the system for 1~3 hours.

In this way, all the components (hose, nozzle, tray, reservoir..) will be sterilized. Pore out the disinfectant water and operate the system again with tap water. Remove the water after use, then wipe out with towels to dry them.

Caution : Please be very careful to keep the controller box away from water.



5. Controller setting

LED lighting time set-up



① **Open the transparent cover of the lighting timer.**
Open the cover and adjust (clock-wise) the white arrow at the current time.

② **Adjust the On/Off lighting time.**

Put the white bar at the Off time and put the red bar at the On time.
As the white arrow runs through the red and white bars, the lighting will repeat On and Off at the time set up.

Example) To turn off at 12 O'clock pm(24 hour) and turn on at 5 am, put the white bar at 24 and red bar at 5.



On/OFF period for different types of vegetables

Types	On time	Off time
Leafy vegetable(Lettuce)	17 hours	7 hours
Herbs	18 hours	6 hours
Strawberry and fruits	15 hours	9 hours

For the leafy vegetables, turning on for 24 hours is the best. However 16~17hours is also very efficient to save energy cost at the same time.

Fruits vegetables need to bloom flowers at the night time. Thus it is necessary to turn the light off for certain period.





5. Controller setting

Aeroponic operation time set-up



Operation panel for UV sterilizer

Operation panel for Aeroponic system



On going position



resetting position

① Aeroponic time set up

The Aeroponic Pump is already set up with On-5mins, Off-15mins. Generally, this set up time doesn't need to be changed. However in case you need to adjust the time, please follow the guide line below.

Caution : Wrong set up may cause the timer breakdown or abnormal growth of the plants.

② Method for reset.

Press the '>' button for 3 seconds and the reset display will come out. Resetting position shows 0005, 0015, and this means the device will on for 5mins and off for 15mins. Press '>' button again to take the setting position. Press '^' button to change the numbers on the display.

After you finish the set up time, just wait for 20seconds to let it save automatically. Setting up is done. Please wait and check if it works properly.

Caution : Do not set up the On time over 10 minutes.

Aeroponic On/OFF period for different types of vegetable

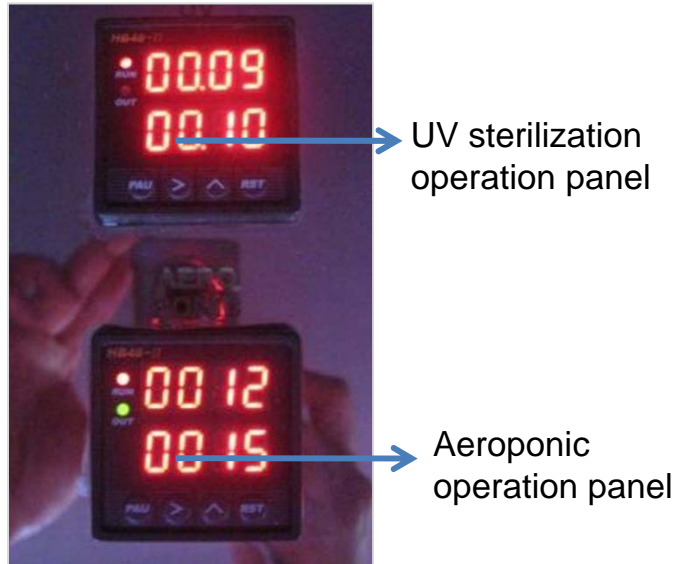
Types	On time	Off time
Leafy vegetable (Lettuce)	3mins	5mins
Herbs	5mins	20mins
Strawberry and fruits	5mins	15mins

The Aeroponic system will keep repeating on and off periodically. Even if the Lighting are OFF, the aeroponic system will operate itself based on the set up period.



5. Controller setting

UV sterilizer set-up



① Setting the operation of UV sterilizer

The UV sterilizer works in the nutrient solution tank. A filter is provided for removal of impurities from the nutrient solution as well as disinfection of the nutrient solution in order to maintain the nutrient solution in clean state always. The UV sterilizer is set so that it is operated on for 10 minutes and then is shutdown for 30 minutes repeatedly when it is shipped in the factory. It is not usually required to change the setting but, if required, you can adjust the setting as described below.

Note: Be careful when changing the setting because wrong setting may result in damage of components caused by overheat and the growth of the plant may be interfered with.

② How to reset

Push “>” button of UV sterilizer for 3 seconds or longer to display the setting screen. The sterilizer is set to be 0010 and 0030 on the screen. This setting means that the UV sterilizer is operated for 10 minutes and then is shutdown for 30 minutes. Push “>” button again to move the cursor right. Move the cursor to the point to be changed and change the setting using “^” button.

When both of the operation time shown above and the shutdown time shown below are changed, wait for about 20 seconds; the setting is automatically saved and the operation screen is changed. Now, the setting change is completed. Check whether the UV sterilizer is operated or shutdown to meet the changed setting.

Note: The UV sterilizer shall be operated in the water. If it is operated out of water, it may be damaged.

PAU : The operation is stopped.

>: When pushing for 3 seconds or longer, setup screen appears; this button is also used to move the cursor right.

^ : This button is used to change the figures.

RST : When pushing this button, the UV sterilizer is reset and the operation is started at the first.



6. Problems and supplementation



Q. What place is adequate to install the Café Farm ?

The Café Farm should be installed in the room; in fresh environment such as dwelling or office space separated from outside.

Optimum environment for installation : The place where the temperature is controlled at 16~24°C (very important) and the humidity is not less than 60% although the Café Farm is little influenced by the humidity. If the temperature of the place to install the Café Farm is higher or lower than the recommended temperature for installation, the plant does not grow well.

Note : Do not install the Café Farm at the place that is directly exposed to the wind from a heater, refrigerator, or window.

Q. Is it required to control the Café Farm everyday ?

No, the Café Farm is automatically operated after completion of setting. However, it is needed to check the Café Farm for adequate operation and to add water and/or nutrient solution at regular intervals.

Q. How can I manually turn on/off the light ?

The lighting of the Café farm is set as automatic but may be manually turned on/of. You can use the switch on the lighting box or the LED lighting switch in the control box.

The LED switch in the control box is used to turn on/off the entire LED lighting and the switch on the lighting box is used to turn on/off the lighting for each high or low wavelength.

Q. Is the lighting time different by the kind of plant ?

Yes, in case of common leafy vegetables, 16~24 hours of lighting time is adequate regardless of their kind. The most efficient lighting time is 24 hours but 16 hours are the most optimum lighting time in consideration of the efficiency of energy saving.

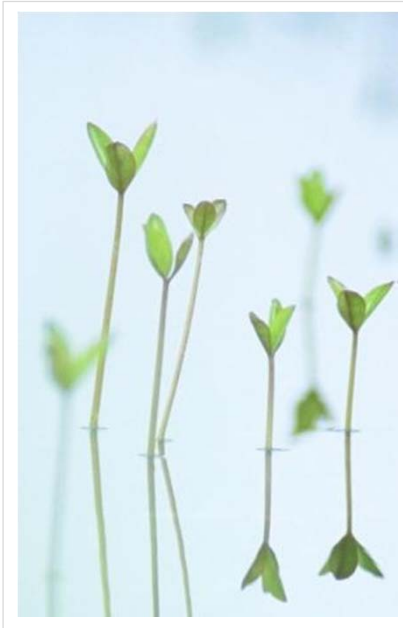
Flowering or fruitful plants other than leafy vegetables can perform physiological actions and can flower or bear fruits when the light is turned off during nighttime.

Q. What's the reason for no germination ?

The reason for no germination of seeds is that the sponge is not sufficiently wet with water or the seeds are planted to deep and rot. The seeds out of expiry date do not easily germinate.



6. Problems and supplementation



Q. How can I cultivate the plant that is not recommended by the manufacturer ?

Make an inquiry to the manufacturer. Although you have professional knowledge on culture of plants, it's better to check the possibility and method of culture through the manufacturer because of the property of the Café Farm.

Q. What can I do in case of power failure ?

When the power is gone off, the entire functions of the Café farm become unavailable. However, although the power is gone off, no problem or damage is generated in the Café Farm. If the power is gone off for a long time, water should be supplied to the culture pots using a kettle or sprayer in order to keep the plant during culture. Take the nutrient solution of the nutrient tank in the kettle and put the nutrient solution to each pot in small quantities. It is recommended to supply the water in 30 minute unit.

When the power is supplied again, the Café Farm works properly.

Q. If Aeroponic generates excessive noise, what shall I do ?

Aeroponic supplies nutrient solution to the roots of the plant using a high-pressure pump and may generate noise if the nutrient solution hose contacts with other materials or is separated from the safety device. In this case, check whether the nutrient solution hose (8mm black hose) is separated from the anchoring clip and whether it contacts with other materials; if required, take measures.

Q. How can I move the Café Farm to another place ?

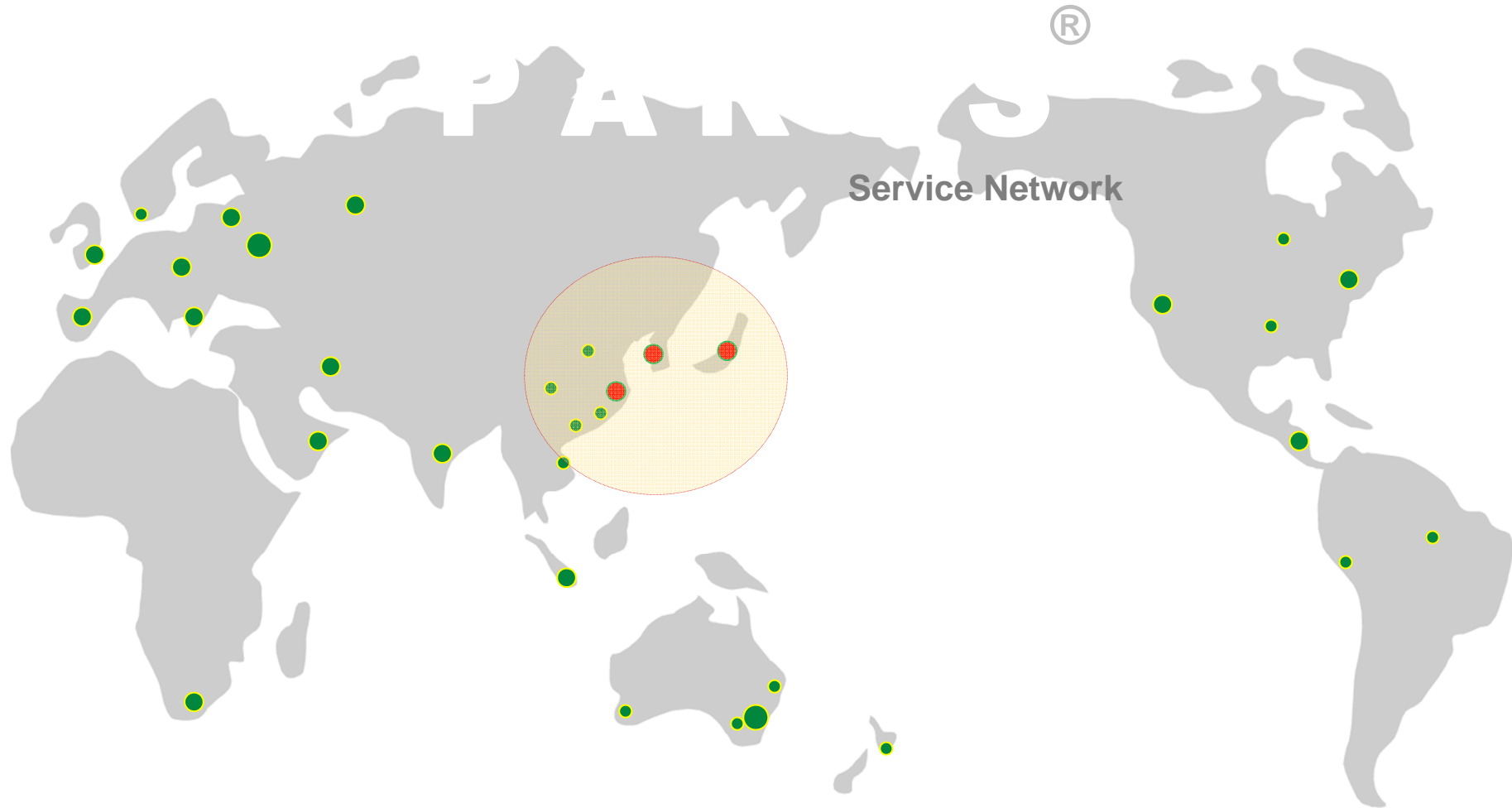
When moving the Café Farm after culture, you can move the Café Farm using mobile wheels after turning off the power. You can also move the Café Farm during culture after turning off the power but you have to supply the power within 30 minutes.

When moving the Café Farm to a far place or a completely different place using a vehicle, make an inquiry to the manufacturer.

Q. If the plant dies during culture, what shall I do ?

If the plant dies during culture, separate the culture pot, remove the died plant, wash the culture pot clean, put the culture pot at the original point, and cover the culture pot with germination reflex sheet. If the pot is not covered with germination reflex sheet, the sprayed nutrient solution may gush out.

If there is any other problems, make an inquiry to the manufacturer or service center.



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