

# Establishing Nurseries with Jiffy Pellets Technology: Step-by-Step Guide

## COFFEE



The use of Jiffy Pellets technology to propagate plants, such as coffee, is a modern and efficient alternative that promotes optimal root and plant development in the early stages of growth.

# What is a Jiffy Pellet?



A **Jiffy Pellet** is a biodegradable (norm EN 13432) container that contains compressed substrate (such as peat or coco coir) inside. Jiffy Pellet is a "2 in 1" system that combines both the substrate and the container in a single structure, offering an efficient, ecological and sustainable solution. The pellet is wrapped with a net made of polylactic acid derived from corn starch, completely free of fossil plastics as it is made of renewable materials and biodegradable by the action of soil bacteria. This container is used for plant propagation, providing a controlled and healthy environment during the nursery stage.

The manufacturing process of these pellets involves temperatures up to 108°C. In addition, independent laboratory analyses are carried out regularly, and results are available upon request, confirming the absence or only very low levels of potential contaminant.

## 01 Building the Nursery Infrastructure

For an efficient nursery using Jiffy Pellets, it is essential to build an **elevated table**. This structure helps to generate the **airrunning** effect, which temporarily stops root growth by exposure to light and air currents, without causing deformities. When the plants are transplanted into the soil, root growth is reactivated, favoring normal development in the field.



### Table construction:

- ✓ **Recommended materials:** Guadua, wood, galvanized pipe or concrete.
- ✓ **Minimum height:** 20 cm. A height of 70 cm is recommended for better ergonomics.
- ✓ **Suggested width:** 1.0 m for easy accessibility and cultural work.
- ✓ **Support mesh:** Install a plastic or galvanized mesh over the table to place the pellets.

### Pellets configuration:

- ✓ If using **bulk pellets**, one should separate with strapping to create a 5.5 cm side grid. Densities of **225 plants/m<sup>2</sup>** are achieved.
- ✓ If **plastic inserts** are used, densities of up to **144 plants/m<sup>2</sup>** can be achieved.

**Roof:** One should install a transparent plastic roof to protect the plants from excessive rain. In high light conditions, a saran or poly-shade mesh can be installed to regulate sun exposure.



## 02 Type of Jiffy Pellets

For coffee cultivation, the use of 50 x 150 mm pellets is suggested, with substrates such as peat or coco.

These pellets are coated with a biodegradable (norm EN 13432) net, which allows the passage of roots into the soil while decomposing with bacterial action. The rate of decomposition varies according to the rate of microorganisms in the soil, and can last from 3 to 24 months (depending on the temperature and soil quality).



## 03 Use of fresh seed



It is essential to use certified seed and ensure that it is in good condition, without being stored for too long.

Proper storage is key to maintaining a high germination rate. Improperly stored or over-dried seed can drastically reduce germination capacity.



## 04 Expansion of Jiffy Pellet

Before sowing the seeds, the pellets should be expanded in water. This can be achieved by using a flooding pool:



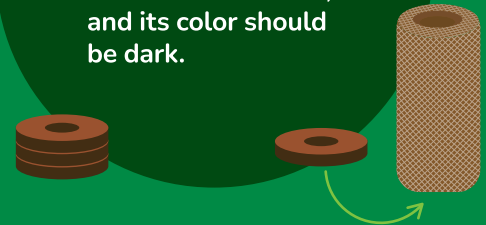
Water depth: 4-10 cm.



Expansion time: 15-30 minutes, depending on water temperature, the age of the product and the size of the pellets.



The pellet should be FULLY EXPANDED, with no compressed or hard areas inside, and its color should be dark.



## 05 Sowing the Seed

Seeding can be done in two ways:



1

### Direct sowing in the pellet:

Place the seeds flat side down, in the hole of the pellet. Cover them with peat or use a shade net to create a dark environment that favors germination.



2

### Sow in a traditional germinator:

Germinate seeds for 25-30 days in peat or sand, then transplant seedlings with developed roots into the pellet.



It is important to verify the **correct orientation of the seed**, placing the root in such a way as to avoid any deformity.

## 06 Irrigation Management

Irrigation should be carefully monitored:



**Recommended method:** pellet weight. When a pellet reaches a weight of approximately 140-150 grams, it is time to water.



**Frequency of watering:** It will depend on the climate, but excess water should be avoided, which could lead to waterlogging; or loss of nutrients.



**Drop size:** An irrigation system that generates fine drops should be used, favoring a uniform distribution of water and avoiding loss of substrate.

## 07 Fertilization in the nursery

The pellet does not contain nutrients, so it is necessary to implement a fertilization plan when **50% of the plants have expanded their cotyledons**.

One should use **water-soluble fertilizers** and avoid those that contain only urea, since the nitrogen in urea is not directly assimilated by coffee plants. Fertilizer doses should be applied **weekly**, following a structured program.

Application	Fertilizer	Dosage (g/L)	Grade of fertilizer
Week one	Urea phosphate	3	17-44-0
	Magnesium sulfate	3	0-0-0 +16% MgO+S
	Mix of minor elements	0,5	
	Potassium nitrate	3	13-3-44
Week two	Calcium nitrate	3	15.5-0-0-26

## 08 Solarization of Plant Material

Three weeks before transplanting to the field, gradually accustom the material to solar exposure:

1

Expose plants for **one hour daily** for 3 days.

+

**Gradually** increase the exposure time until they are fully acclimatized.

If the planting site has different conditions, it is recommended to carry out solarization directly at the site to achieve better adaptation

## 09 Seeding Site Adequacy

Before planting, one should carry out a soil analysis to ensure that the soil conditions are suitable for coffee. Make sure to limestone the soil beforehand if necessary, and prepare the soil by solarizing it to disinfect it.

- ✓ **Planting holes:** They should be 20 x 20 x 20 cm.
- ✓ **Organic matter:** Mix the soil in the hole with organic matter to improve the physical and nutritional properties of the soil.

## 10 Start-up Fertilization

At the time of **transplanting** to the final site, a starter fertilization should be carried out. This should be rich in phosphorus and nitrogen, and recommends applying between 10 and 15 grams of fertilizer (monoammonium phosphate or diammonium phosphate) 10 cm above the plant stem on the soil.

**This initial fertilization is essential to stimulate the growth of the root system and ensure a good take-off of the plants in their vegetative growth.**



## Conclusion

Establishing a nursery using Jiffy Pellets not only improves the control of initial plant **growth**, but is also an **environmentally friendly and sustainable option**.

With proper infrastructure, correct seed management, irrigation, fertilization and gradual exposure to the sun, optimal development of coffee seedlings can be ensured, resulting in **successful** transplanting to the **field**.