

Costs and key points of raising young chicks and rabbits

Chick rearing has two main types of costs: (1) **costs of the rearing structures**, which include the box with the outside patio, the infra-red lamps, feeders and drinkers; and (2) **daily care costs**, which include food and cleaning. **The rearing of young rabbits also has two main types of costs:** (1) **installation costs of the cages**, both for males and females; and (2) **reproduction and rearing costs**, which include mating and caring for the kits from hatching until they are transferred to the pasture.

■ Quantifying the costs of rearing chicks

The quantification of the installation and rearing of the chicks (**Figure 1**) until they are transferred to the pasture is based on calculating two different types of costs:

1. **Cost of breeding structures.**
2. **Cost of daily chick care.**

Next, we will describe the alternatives that we have analysed for each of these processes, indicating the costs they represent and their variability (**Table 1**).

1. Cost of breeding structures. Each rearing structure consists of a **large temperature-controlled box**, which is self-constructed from recycled insulating sandwich panel, and a front yard delimited with chicken wire on all sides (including the roof). In addition, there must be **two infra-red lamps (€25 for each one, including installation)**, **two feeders (€12 each)** and **drinkers (€8 for an initial one for when they are small, and €23 for the bell drinker that is then put on the patio when they are bigger)**.

2. Daily cost of feeding and caring for the chicks. The daily running costs of chick rearing include chick **feed for the 30 days before they are moved to the pasture**, and the staff to feed them and keep the structure clean.



Figure 1. Structure for chick rearing at the Planeses farm. Photo: Marc Gràcia.

- The chicks are fed for 30 days with a monthly quantity of 0.75 kg per chick of feed at a cost of **€0.32-0.36/kg**. Other materials used such as biochar, apple cider vinegar, fermented garlic and straw for the bed have a very low cost or are products generated directly on the farm at no additional cost.
- To this must be added the **time spent by a worker** feeding and cleaning the chick cages (about **0.25 h** per day and per cage, in total **2-3 days per week**).

■ Quantification of the costs of rearing young rabbits

The quantification of the installation and rearing of young rabbits until they are moved to the pasture is based on calculating two different types of costs:

1. **Cost of installing the cages.**
2. **Cost of reproducing and rearing young rabbits.**

Next, we will describe the alternatives that we have analysed for each of these processes, indicating the costs they represent and their variability (**Table 1**).

1. Cost of cage installation. This cost includes the cost of individual cages for males and females. The cages that we used are commercial metal galvanised wire cages, which have a market price (€50 per cage) but can also be obtained second-hand at a cheaper price. The cages for the males are cylindrical cages so that the female does not escape, and they cost about €90 per cage.

2. Cost of reproducing and rearing young rabbits. The production of young rabbits includes reproduction by adult rabbits and the feeding and care of the young rabbits for 30 days until they are ready to move to the pasture.

From these considerations, we can establish a series of simple calculations to estimate the **overall costs of raising chicks before transferring them to pasture**. These calculations are based on raising a batch of 200 chicks. **The overall cost is the sum of two costs:**

$$C_{\text{total}} = C_{\text{structure}} + C_{\text{functioning}}$$

Installation of a rearing structure:

$$C_{\text{structure}} = 2 \times \text{€ } 25 \text{ (infrared lamps)} + 2 \times \text{€ } 12 \text{ (feeders)} \\ + (8 + 23) \text{ € (drinkers)} + \text{drawer and patio (self-built)}$$

Daily operation, **the sum of two costs (per batch of 100 chicks):**

$$C_{\text{feeding}} = 1 \text{ month} \times 0.75 \text{ kg feed / (month and chick)} \\ \times \text{€ } 0.34 \text{ / kg} \times 100 \text{ chicks} + 0.25 \text{ h/day} \times \\ \text{Salary/h} \times 30 \text{ days}$$

$$C_{\text{cleaning}} = 0.25 \text{ h / day} \times \text{Salary/h (3 days per week)}$$

• **Rabbit reproduction** requires keeping **male and female in separate cages**. The transfer of the female to the male's cage, courtship and copulation are very fast, and **in less than 0.25 h the female is back in her cage**.

• Female rabbits should be fed **during the 31 days of pregnancy and 30 days of weaning** with a **monthly amount of 8 kg of feed** with an approximate **cost of €0.5/kg**. An equivalent amount is needed to feed the male that performs the copulation. To this must be added the **time spent by one worker feeding the rabbits and cleaning the cages (about 2 h per week for 25 rabbits)**. Finally, **the cost of the vaccines** for the average 10 young rabbits produced at each farrowing must be considered, but it is a small cost compared to the others.

From these considerations, we can establish a series of simple calculations **to estimate the total costs of raising rabbits until they are transferred to the pasture**. These calculations are based on raising a batch of 10 rabbits produced in a single parity. **The overall cost is the sum of two costs:**

$$C_{\text{total}} = C_{\text{infrastructure}} + C_{\text{functioning}}$$

Installation of infrastructure, sum of two costs:

$$C_{\text{cages}} = \text{€ } 50/\text{cage (for female)} + \text{€ } 90/\text{cage (for the male)}$$

Operation (per month), the sum of two costs:

$$C_{\text{reproduction}} = 0.25 \text{ hour} \times \text{Salary/hour (preparation and copulation)}$$

$$C_{\text{feeding}} = 8 \text{ kg feed/month} \times 2 \text{ months} \times 0.5 \text{ €/kg (the same for males as for females) (feeding)} + 8 \text{ h}/(25 \text{ cages and one month}) \times \text{Salary/hour (cleaning and food)}$$

■ Considerations on the optimal strategy for rearing young chicks and rabbits

The **key points** to consider when raising chicks and young rabbits are the following:

Chicks

- **It is convenient to bring the chicks to the farm when they are one day old:** they are cheaper than if they are brought in later and they work perfectly.

- There are many breeds of chickens, **the Planeses farm works with the Broiler breed**. There are other breeds that get bigger or have slower growth. In these cases, the parameters that have been given in this sheet may vary.

- When working in **larger spaces with more chicks, it is often more cost-effective to use gas heating** instead of infra-red lamps.

Young rabbits

- In the breeding of young rabbits, a key point is to **control the pregnancy and delivery of the female rabbits**. It must be very clear when each female is going to be covered and when it is going to give birth. For this reason, it is essential to have a **detailed file with all the information on each rabbit**.

- During reproduction, **if the male does not fertilise the female in less than 5 minutes**, it is not worth continuing and it is **better to separate them both** to their cage.

Parameter	Unit	Value used	Variability and causes
Chick raising			
Maintenance time in the rearing structure	Day	30	It depends on the time of year, it may be less time, 3 weeks in spring and summer
Amount of feed to feed the chicks	kg/(month and chick)	0.75	-
Price of chick rearing feed	€/kg	0.34	There is a range according to the companies and cooperatives that sell it
Time to clean and feed a batch of 100 chicks	h	0.25	Time may be longer if it rains
Young rabbit breeding			
Cost of an individual cage for a female rabbit	€/cage	50	They are commercial cages, there are multiple models on the market
Cost of an individual cage for a male rabbit	€/cage	90	They are commercial cages, but bigger and cylindrical
Time to get the rabbit pregnant	h/attempt	0.25	This is the total time from when the female is caught in her cage, but if there is no copulation in 5 min it is better to separate them again.
Amount of feed to feed the female until weaning	kg/(month)	8	It is the same quantity to feed the female or the male.
Price of rabbit feed	€/kg	0.5	There is a range according to the companies and cooperatives that sell it
Time to feed the rabbits and clean the cages	h/month and 25 cages	8	-
Age at which young rabbits are placed in the pasture	week	4	Not less, if they are not, they are very small

Table 1. Parameters used to calculate the costs of forest harvesting, indicating the values used in Polyfarming and any variability that can occur in these values.