

How to convert your combination system into a true aviary barn system for better laying hen welfare: Fattoria Roberti Case Study



BACKGROUND

With an increasing number of cage-free commitments published by leading food companies over the last few years, more and more producers are seeking alternatives to their caged systems for laying hens. Multitier systems were developed in Europe around two decades ago as cage-free alternatives, to allow farmers to use the barn space in a more efficient way while still meeting minimum EU legal requirements for the welfare of laying hens. They are available in an increasing variety of designs and specifications and can be tailored to suit existing building dimensions.

In order to meet the market demand for cage-free eggs and at the same time taking into account the existence of recent investments which haven't been paid off yet, in some cases producers are considering to convert their caged systems into multitier/aviary systems, rather than invest in brand new systems. In other cases, producers have invested in the so called **combination systems**, which feature aspects of both aviaries and conventional cages and have often been marketed and sold as a one-stop solution. They are promoted as offering management and production benefits, as well as for the possibility to maximize stocking density, however they present several welfare issues for laying hens. As a primary concern, combination systems have gates which allow the hens to be permanently confined, and internal partitions within the tiers which limit the hens' freedom to move along the tier. Furthermore, there is growing consensus in the industry and between NGOs that these systems cannot meet consumer expectations in providing better welfare standards for the hens and can represent a reputational risk for those companies committed to invest in sustainability.

There is a need for a cage-free entry point egg which can be met by the production through barn multitier system, but to deliver an acceptable level of welfare for the hens, it is important to set minimum standards for key criteria in these systems, especially in the conversion of cages and combi systems.

COMPANY INFORMATION

Marvit Srl, commercially known for its brand Fattoria Roberti, is a family-owned egg production company founded in Northern Italy in 1962. Every year they farm around one million hens, and their production is mainly focused on fresh whole eggs, either to be sold under Fattoria Roberti brand or to supply food service, manufacturers, and retailers' own label. The company philosophy is developed around 6 core values: their agricultural origin and the knowledge and experience of their famers, the quality of their products (ensured by the traceability of their eggs which are labelled on farm), the welfare of their animals, the protection of the environment, the constant investment in research and innovation, and a young and dynamic team. The company has undertaken several projects to improve animal welfare over the years, and it has been one of the first Italian egg companies to phase out beak trimming in almost all their farms and to invest in barn systems when the market was still heavily focused on enriched cages.

Compassion has worked together with Fattoria Roberti in the past year to set minimum standards for the conversion of their combination and caged systems in order to meet the welfare needs of laying hens. The company has shown proactive willingness to take into account Compassion’s recommendations on how to best modify the systems in place in order to allow a better welfare for the hens, and has planned all the interventions and structural modifications keeping what the hens want and need at the heart of their projects.

CONVERSION OF COMBINATION/CONVERTIBLE SYSTEM INTO A CAGE-FREE BARN SYSTEM THAT CAN ENSURE BETTER WELFARE FOR THE HENS

Farm information

This case study focuses on the interventions carried out in a shed that before the conversion was housing 20,000 hens in a combination system used as a cage. The structure is a **Valli Space Aviary**, made of 3 rows with three tiers each and a larger alley between the second and the third row (*Image 1 and 2 and 3*).

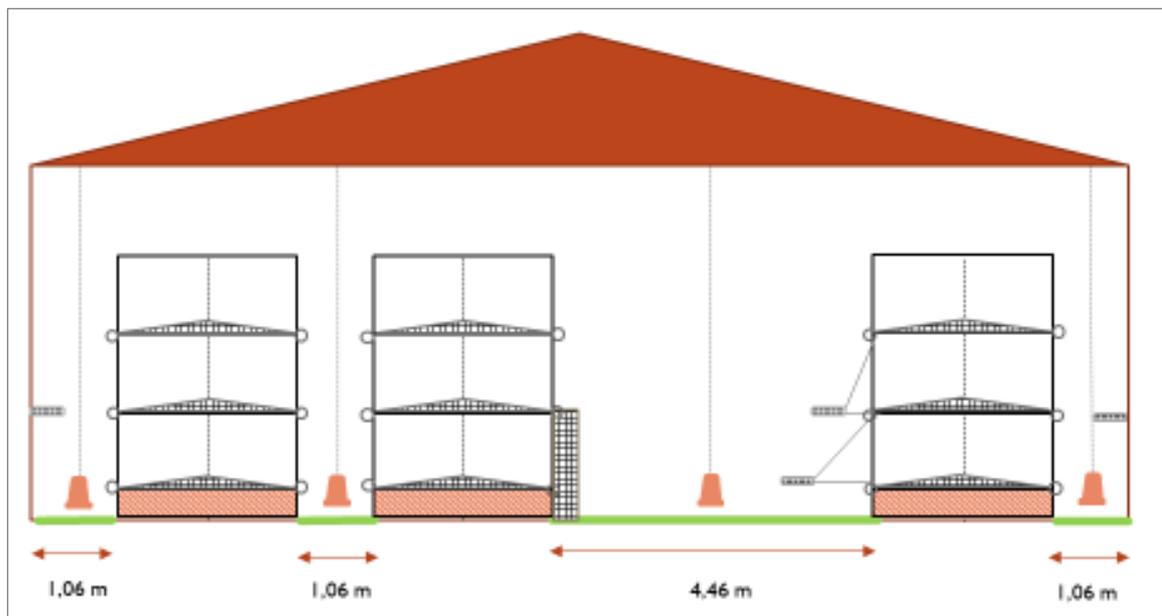


Image 1 - Visual illustration of the shed (frontal view) and some of the elements included in the transformation

Table 1. Overall farm information

Number of hens in the shed	18,000
Number and size of the colonies	3 colonies, 6,000 hens per colony
Breeds	12,000 Bovans Brown, 6,000 Dekalb White
Stocking density per usable area	9 hens/m ²
Stocking density at floor level	26 hens/ m ² ¹
Litter	Wood shavings, top layer removed and replaced every 2 months
Perches	42cm per hen

¹ At Compassion we recommend a maximum stocking density at floor level of 18 birds/m², preferably 15 birds/m², to allow ease of movement and expression of species-specific behaviour. We recognize that the initial investment to adapt and convert the system in place incurs cost and that lowering stocking density at the floor area will require a significant reduction in the number of hens, further impacting the cost of production. However, we strongly encourage companies and producers to invest in better systems, and to develop a plan of gradual reduction of the stocking densities over the following years.

Lighting	Artificial light (20 lux on average), with a dawn/dusk regime; around 40 lux when the hens are younger and first housed in the shed, 20 lux at the end of the cycle
Ventilation	Longitudinal; increased about 20% compared to when the barn was run as a caged system to improve air quality and ensure hens and eggs are clean
Pullet rearing	Pullets come from similar, barn systems, both flat decks and multitier. The current cycle is housing hens coming from a multitier system
Beak trimming	The company operates with intact beaks (<i>Image 4</i>)



Image 2 - Structure: 3 tiers + floor



Image 3 - Alley covered with litter



Image 4 - Intact beak

Table 2. Farm production data

Age of the hens (end of cycle)	72-76 weeks, 74 on average
Mortality (end of cycle)	Around 4,8 - 5 %
Feather cover	On average around 60% of feather coverage at the end of the cycle. Depends on the breed and on how much they produce, the hens producing more usually have worse feather coverage. Feather peaking has not occurred for the moment, the farmer shared that the amount of perches available may have helped because hens always have the possibility to escape dominant animals
Number of eggs produced	On average around 325/320 eggs in 72 weeks, depending on the time of the year on which they were housed (if housed in summer might be a bit less)
Number of floor eggs	Around 0,1%

Interventions and improvements

The conversion of the shed started in December 2017. The decision was made following the direction taken by the market and the willingness of the company to move all their production to cage-free systems by 2025. All the interventions and adjustments in this shed required an investment of about 1,50€ to 2€ per hen and it took about two weeks to put everything in place, while for other larger buildings the conversion took up to 20 days. They worked together with the system manufacturer to plan the main adjustments, but most of the improvements were developed by the farmers thanks to their experience with other standard multitier systems.

- **Ease of movement: ramps and platforms**

To allow ease of movement between the tiers, the farmer added ramps and platforms to the structure:

- Slatted ramps from floor to 2nd tier, 4cm height, 30 to 50cm width, 4m long (*Image 5*)
- Platforms: both slatted and wooden platforms at 1st, 2nd, and 3rd tier, all of the same measures: 4m long, 30 to 50cm width (*Image 6, 7 and 8*)



Image 5 - Ramps



Image 6 - Wooden platform



Image 7 - Slatted platform



Image 8 - Slatted platform

- **Ease of movement: doors**

The doors are currently only used for the first 10 days when hens are housed in the shed, to make sure they learn where feeders, drinkers and nests are, then they are removed. As part of its continuous improvement journey, the farmer will gradually remove doors and allow temporary confinement (when needed) through the use of nets.²

² At Compassion we recommend avoiding initial confinement of the hens when first housed in the shed. We suggest to test housing hens in the laying farm without confinement in a section of the shed in order to identify any problems in the movement, feeding and nesting behaviour and to explore solutions to facilitate their learning without the need of confinement.

- **Ease of movement: partitions**

The initial structure included partitions within the tiers every 3 meters: because these were structural features, it was impossible for them to be completely removed. As an alternative, the farmer decided to cut an opening in the partitions to ease the freedom of movement within each tier and prevent smothering. This was the first intervention carried out after the first cycle because hens were visibly colliding against the partitions. In each partition two openings of 45cm height and 50cm wide were created (*Image 9*). The farmer mentioned that adding those openings and easing the movement within the tier also positively influenced uniformity in weight between hens, who have more freedom to choose where to eat and drink, and a more uniform use of the nests during egg laying.



Image 9 – Openings in the partitions

- **Expression of natural behaviour: pecking substrates**

Additional **pecking substrates** are also provided from the first day the hens are housed in the shed to enable the expression of natural behaviours such as pecking and foraging. To keep the hens occupied, the farmer distributes hay on the floor and scattered grain in the litter (around 5g per hen a week); in addition to this, hopper feeders hanging from the ceiling with a mix of alfalfa are also present (*Image 10 and 11*).

Peck blocks (*Image 12*) are also provided as environmental enrichment, which helps in managing flocks with intact beaks by contributing to naturally smooth the hens' beak. Different breeds and different cycles use the enrichment in different ways, and the farmer always gives great attention to the way the hens are using it, adjusting its replacement and renewal accordingly, for instance sometimes the farmer has to replace or add enrichments once a month, in other cases once a week. On average they are added or replaced once a month.



Image 10 – Hopper feeder



Image 11 – Hopper feeder



Image 12 – Peck Block

- **Expression of natural behaviour: perches**

42cm of perch space is provided per hen. According to the farmer, providing such a large amount of perch space, especially on higher tiers, has made a crucial difference to prevent pecking and aggressions, as besides using them to sleep at night and rest, hens also use them to escape from dominant animals during the day.

KEY MESSAGES

The interventions carried out in the shed allowed a successful transformation of a combination system used as a cage to a cage-free multitier structure, that can ensure a meaningful improvement to the life of the hens; the animals are now able to move more freely in and around the system and perform natural behaviours. A summary of some key messages can be found in the two boxes below.

The farmer suggests:

- Providing plenty of environmental enrichment to keep the hens occupied, entertained and free to express their natural behaviours is crucial in order to operate with intact beaks
- Ramps and platforms, especially where the distance between rows is larger, are very important to help the hens move around and reach higher tiers to perch, rest and sleep
- Consider opening the partitions as first intervention, as this allows freer movement between tiers and rows, and prevents smothering
- Compared to the same system operated in cages, this type of structure requires more effort from the stockmen but allows them to spend more time with the animals, to observe the system and learn what works better for the hens and their needs. Training the farmers appropriately is therefore key for the success.

Farmer's opinion:

"We are glad we managed to transform the structure into a real barn concept with more open tiers, possibility for the animals to grip well in order to set up for flights, tiers well frequented, good ventilation, clean and friable litter, few floor-eggs, clean eggs. Not all systems allow this type of adjustments, but this specific structure, with the right interventions and modifications and specific attention to details, has given us great satisfaction. As soon as we have the possibility, we will transform other similar structures as well".

ADDITIONAL INFORMATION

As Compassion, our aim is to support farmers to make wise investments in systems that will be able to respond to future challenges, and to support the conversion of existing structures into alternative systems which are able to deliver a meaningful improvement to the quality of life of the hens. More information on our recommendation for proper barn systems can be found in our resources section:

- Infographic [Cage-free systems fit for purpose and fit for future](#)
- Drawing [Providing laying hens with a good quality of life](#)
- Practical guide [Additional guidelines on multitier systems for laying hens](#)
- Video [Fit for purpose – Cage-free systems for laying hens](#)
- Practical guide [Higher welfare systems for laying hens](#)

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