

THE AUSTRALIAN EXPERIENCE WITH AVIARY SYSTEMS

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INTRODUCTION

Although aviary systems are commonplace in the EU, they are not so common in Australia. In 2006 a state of the art free range farm was built on a greenfield site in Northern Victoria consisting of 3 sheds, each with the capacity to hold in excess of 40,000 birds through the use of an aviary system. This paper gives a Farm Managers overview on the use of an aviary system under Australian conditions and some ideas on how it can be effectively managed particularly as a free range operation.

FARM SPECIFICATIONS

The aviary system used on this site was purchased from Vencomatic and is called the Bolegg Terrace system. A rearing facility was also built on the site specifically designed to grow birds for an aviary environment, this system was also purchased from Vencomatic and is called the Bolegg Starter system. For more information on these systems, visit the Vencomatic website: www.vencomatic.com. Environment controlled sheds were built to house the aviary system on the production and rearing sites.

Vencomatic Bolegg Aviary System

The Vencomatic Bolegg Terrace system consists of rows which have a number of levels; the first level contains drinker and feeder lines, the second level contains nest boxes and drinker lines and the third level contains feeder lines only, the ground or floor level is 100 percent scratch area (Fig. 1).

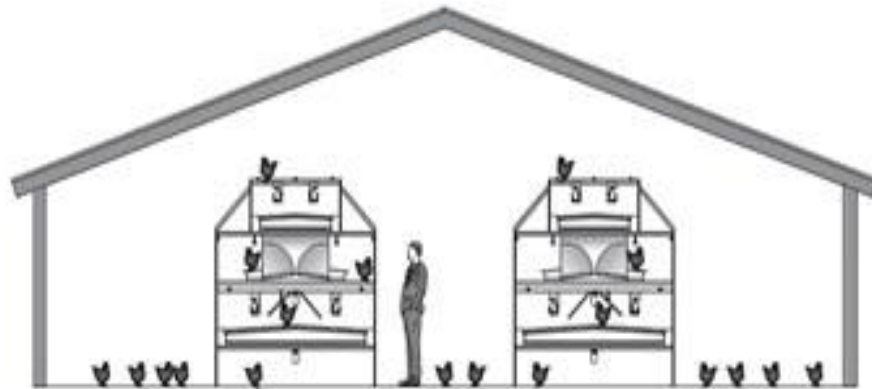


Figure 1 Example of the Bolegg Terrace Aviary System with 2 rows (Courtesy of Vencomatic)

By having the ground floor free of obstructions such as nest boxes, feeder and drinker lines, the birds are able to have easy access to the outside range areas through pop holes on the side walls (Fig. 2). There are a total of 44 pop holes that run down both sides of the shed, the pop holes are fully automated to open and close through the use of time clocks.

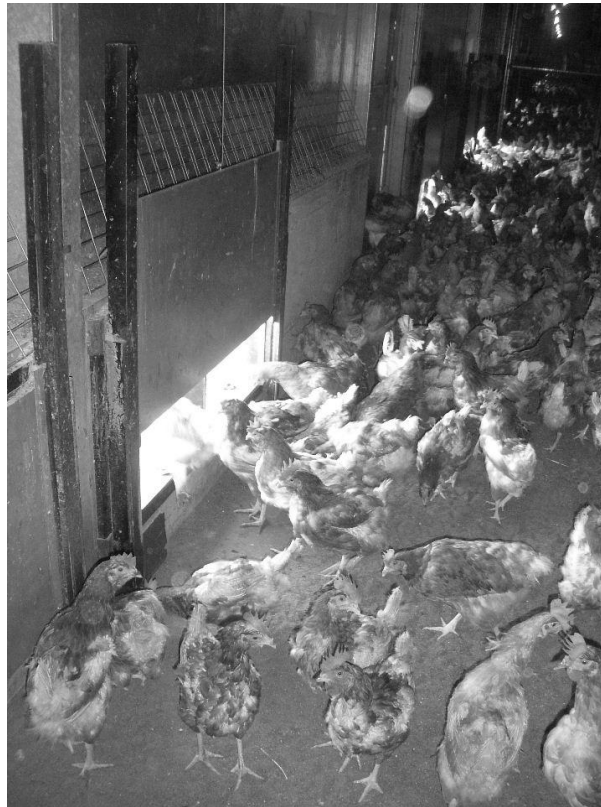


Figure 2 Birds accessing the range area through pop holes on the side walls of the sheds

All levels within the system have a number of perches allowing birds to easily travel up and down the system and across from one row to another. Two of the levels have a manure belt underneath them; the manure is removed weekly thus reducing the amount of litter build up in the shed. The system is designed to meet the natural behavioural needs of the birds which include perching, dust bathing and laying eggs in a nest (Fig. 3). The Bolegg Terrace system meets both current EU and Australian animal welfare regulations.



Figure 3 Birds occupying all different levels of the system

Shed Design

Unlike the EU, most regions of Australia experience very hot weather, so this was a different variable that needed to be considered and an important aspect with an aviary system which houses more birds in a shed than other conventional non cage systems. With this taken into account, the sheds are environment controlled through the use of fans and cooling pads, giving the birds the best possible inside conditions. Although there was initial concern that the sheds would not be adequately ventilated during hot weather with the pop holes open, this was not proven to be the case, with the sheds still operating at a comfortable level for the birds even with temperatures reaching 40+ degrees outside. An important aspect of this farm was having fans ventilate from the middle of the sheds with cooling pads situated at both ends of the shed, thus allowing less distance for air to flow from the cooling pad and also having enough fans to pull air through the sheds even with the pop holes open.

Flock Sizes and Stocking Densities

With the use of partitions, each shed is divided into three sections, with approximately 12,500 birds in each section. The main reason the sheds are divided is to keep the birds evenly spread throughout the whole shed. Although it is important to have large flocks divided, too many divisions in the shed will encourage birds to lay floor eggs (in corners and next to walls).

Each shed is capable of housing in excess of 40,000 birds; however, they are generally stocked at lower levels. There are many factors which need to be considered when looking at stocking density requirements some of these include: feeder and drinker space, feeder and drinker accessibility,

nesting space, shed type, shed ventilation and shed cooling capacity and for this reason maximum stocking density levels will vary from farm to farm. Birds should perform at levels set out in the breed standards regardless of the type of alternative system being used; if this is not the case then stocking densities should be one thing that is reviewed.

MANAGEMENT OF AN AVIARY SYSTEM

One of the most important aspects for getting good results in an aviary system is careful and close management of the birds from day 1. If birds are not monitored closely and issues are not resolved quickly then poor results will soon follow and persist through the whole productive life of the flock.

Rearing

The rearing of birds for an aviary system is critical; birds need to be encouraged from day one to utilize perches. It is not recommended that floor reared birds be used in an aviary system due to some birds having a reduced or delayed capability to jump up into the system resulting in poor performance due to inadequate feed and water intake. Birds will also struggle to find the nest boxes resulting in a high percentage of floor eggs.

A number of specialised aviary rearing systems are now available, the Vencomatic Bolegg Starter system was used on this site and at the time was only the second rearing system of its kind built in the world. It is specifically designed to complement the Bolegg Terrace system, the rearing unit consists of two upper levels and the ground or floor level. The first upper level is where the day olds are placed it consists of feeder and drinker lines and also perches and a platform which is raised over time, birds learn to jump on and off this platform. Eventually when the platform is high enough birds are able to access the second level where there are more perches, drinker and feeder lines (Fig. 4).

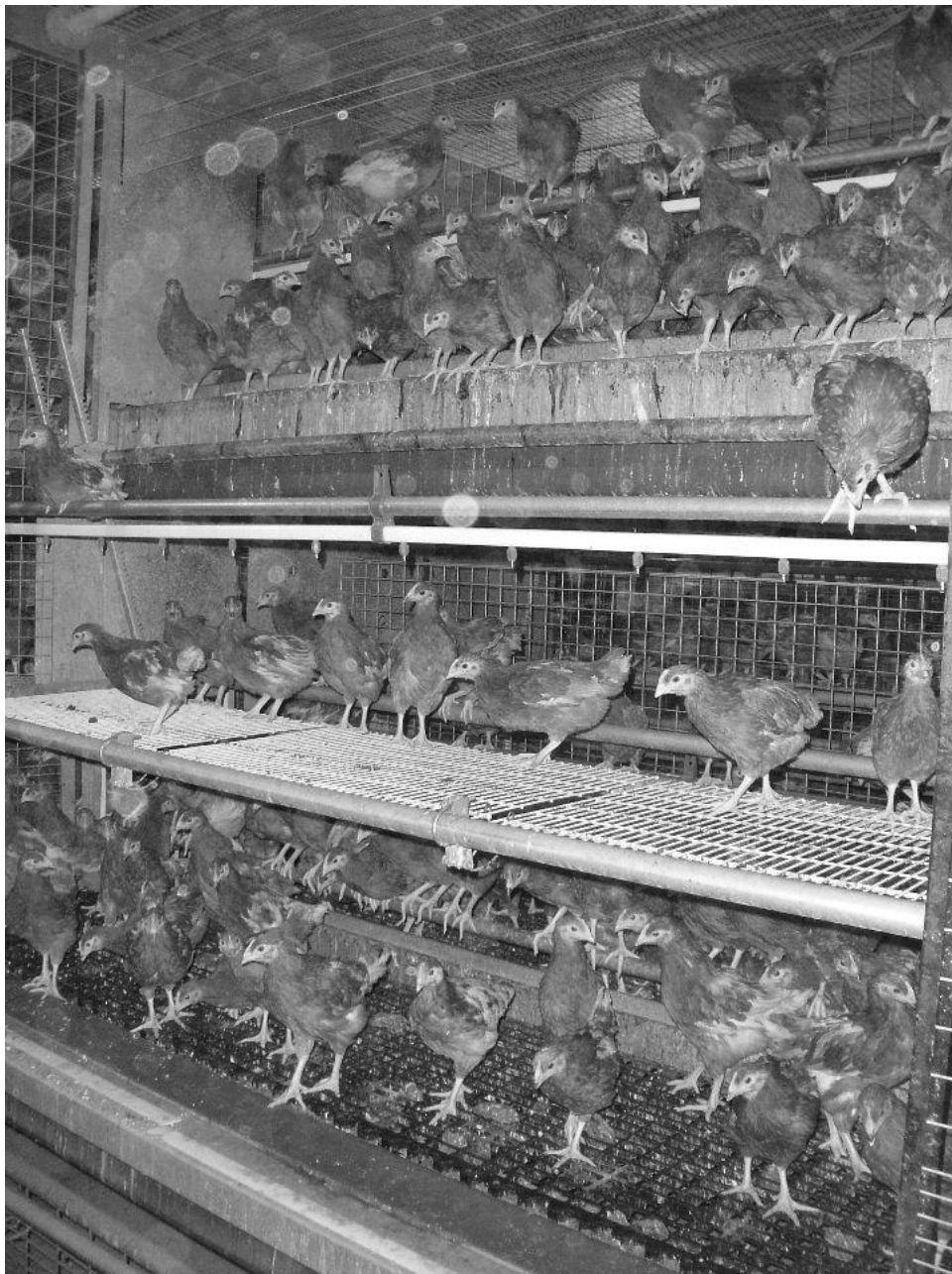


Figure 4 Six Week old birds perching and using the platform to gain access to the top level

This system allows birds to build up their leg strength and be familiar with the use of perches and different levels. Eventually the system is opened up and the birds are also allowed down onto the floor, they then learn to jump back into the system at night.

At 16 to 17 weeks of age the birds are moved to the production sheds, where they are kept inside for a few weeks to allow them to settle into their new environment and familiarize themselves with the nest boxes. During the first week or two the area underneath the aviary system is also blocked off (Fig 5.), this is to ensure the birds get up into the system and find their feed and water. The first few weeks in the production house is very important as the birds are still growing so their feed intake, water intake and bodyweights should be closely monitored, growth during this period is important for good long-term production.



Figure 5 Area underneath the system is blocked off for the first couple of weeks

Lighting

Light training is another important aspect with aviary systems. The Bolegg Terrace and Starter systems have lights at different levels within the shed: - lower, middle and roof. Birds are trained from a young age to go up into the system at night according to when the lights go off, this also reflects what birds would naturally do at dusk – go up into trees to perch. The lower level lights will go off first which triggers the birds to start moving off the ground, the middle lights will then go off which triggers birds to move further up into the system and then the roof lights will slowly dim off over a period of time which should result in all birds off the ground and perched on the upper levels of the system. It is important to have all birds off the ground at night so that when the lights come on in the morning they will eat and drink and more importantly locate the nest boxes to lay their eggs (Fig. 6) If there are too many birds on the floor you will get a higher percentage of floor eggs.



Figure 6 Birds roosting at night, note that there are very few birds on the floor or first level

Breed Selection

Bird characteristics which are more suitable in an aviary system are: birds that are active (a bit flighty so that they stay out of your way when you are working in the shed but not too flighty that they could cause a smother), have good nesting behaviour, are robust and show good perching behaviour. Over the years bird characteristics have been selected to suit a cage environment, so many of these characteristics have been bred out of the bird.

In Australia there are currently three main commercial breeds available, each breed has been tested in the aviary system and each has their good and bad traits. Some breeds have good perching behaviour but are not so robust, so overall mortalities can sometimes be higher than normal, whereas other breeds are more robust but are too docile making it difficult to work in the sheds, and docile birds are also more likely to lay floor eggs. Therefore currently there isn't a 'perfect' breed in Australia that is most suited to an aviary system, although most breeds are acceptable. In the EU there is a greater selection of strains of birds available and some of these are known to be well suited to an aviary system.

Nutrition

When considering nutrition it is important to understand that birds are utilizing a lot more energy in an aviary system compared to cage or other alternative systems. Birds are always on the move ranging, running, jumping, dust bathing and perching. This needs to be taken into account when choosing diets, it may be the case that a high nutrient density diet be used through the whole productive life of the flock, and a ration used for caged birds may not be adequate. It is important to closely monitor bodyweights, feed and water intake to ensure the best judgments with diet selection.

Ranging

Once the birds are well adapted to the production house they are then allowed to range outside. The farm utilizes automatic pop holes which open at mid-morning to give the birds time to lay their eggs undisturbed and have a feed and drink before venturing outside. The birds will migrate back into the

sheds at night fall, the light in the sheds will encourage all birds to migrate in from the darkness outside so it is important to ensure that the lights stay on till after nightfall. The pop holes automatically close every night to ensure the birds are protected from predators. The only time birds are kept inside the sheds is during extreme weather events or when vaccination or medication is required. The sheds are situated in a cross formation to maximize bird access to the range area (Fig. 7).



Figure 7 Sheds are designed to allow for a larger and more accessible range area for the birds

Managing the range area is difficult and over time the areas directly outside the sheds become barren due to constant traffic from the birds, however, as the birds are able to range out further from the sheds the grass cover becomes a lot better. Trees and shelters have been established to encourage birds to range further away from the sheds. More trees have been planted on the barren areas close to the sheds to improve the appearance of that area (Fig. 8).



Figure 8 Trees planted to provide shade and improve the appearance of the barren areas close to the shed

The amount of grass cover is really dependent on the time of the year, the farm is situated in Northern Victoria where the summer months are very hot, there is generally little grass growth during this time and the place can look quite dry, however, the farm was planted down with a drought tolerant lucerne which provides some degree of growth during this time. During the other months of the year particularly autumn to spring after decent rain there is generally a good covering of barely grass (Fig 9.). The concept of having green grass available to free range birds all year round is quite impractical in most parts of Australia, unlike the EU where there is rainfall most weeks. The only way to manage this is through irrigation of pastures, however, this would be deemed as an extremely wasteful exercise when the consumption of grass is not a necessity for the birds.



Figure 9 Good pasture growth during autumn / winter months

The outer area of the range is also planted with cereal crops which provide the birds with an area of cover to forage if they choose to venture out that far (Fig. 10).



Figure 10 Cereal crops growing on the outer rim of the range area which can be accessed by the birds

The number of birds ranging on any one day is quite variable and very much dependent on weather conditions. On bright, sunny days the birds tend to prefer to stay out of the sun and spend most of their time inside the shed. Most birds generally range outside later in the evening when the sun is not directly overhead or on cool, overcast days. Trees and shelters have been constructed to provide birds with protection from the elements when they are ranging (Fig. 11). The important thing is the birds have the choice to range outside or stay in the sheds if they want to.



Figure 11 Shelters are provided in the range areas

CONCLUSION

With demand for non caged eggs on the increase in Australia, the development and introduction of more efficient and larger scale alternative systems into this country is inevitable which has been the case throughout the EU where aviary systems are now common place. As with all different production systems, aviary systems have both advantages and disadvantages, some of which are listed below:

Advantages:

- Designed to comply with world wide codes, legislations and standards for the welfare and housing requirements of barn and free range hens
- Efficient utilisation of shed space through the use of levels, resulting in an increase in the number of birds that can be housed
- Provides an environment that meets the behavioural needs of the birds such as perching, dust bathing, laying eggs in a nest and foraging
- Reduction in costs through the use of automation of systems such as egg collection, feed delivery and manure removal

Disadvantages:

- The need for a specialized rearing facility
- Higher feed costs – due to the requirement of higher nutrient density diets
- Floor eggs can be a problem if not carefully managed
- Poor flock performance if birds are not well reared and trained
- Can be higher mortality rates than a caged system

There have been many challenges since the inception of this farm, new flocks have seen great improvement and flock performance is comparable to the breed standards, however as mentioned throughout this paper careful and close management is required. The aviary system is a cost effective and efficient way of producing eggs whilst complying with barn and free range regulations.

Note: There are a number of different aviary systems available and this paper only reflects one type of aviary system as mentioned in the paper. Not all aviary systems are the same and some may not be suitable for use in a free range situation. The thoughts, ideas and opinions in this paper are that of the author and are not necessarily reflected by Farm Pride or Vencomatic.

