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# **SWIFTLET FARMING**

**A MILLIONAIRE TO BE**

**HOW TO MAKE MILLIONS  
USING THE CORRECT SKILLS  
AND TECHNOLOGY**

**KOAY MIAO DUO**

**Kanyin™**  
PUBLICATIONS

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## **Preface**

This book is not about the procedures of swiftlet farming, but it stresses more on the skills and techniques. Many factors determine whether a bird house is successful or not. The methods that worked well in the past may not be effective nowadays. For instance, you built a bird house five years ago, the result was quite good. After five years, you build another bird house. But the result is only average. You wonder what the problem is. You follow all the procedures you did in the past, but why it still fails? The question is: Have you considered other factors, such as:

The ratio of swiftlet population to swiftlet houses was very high 5 years ago. It was the case of “birds looking for homes”. Now the opposite is true. It is “houses looking for birds”.

Five years ago, bird houses in your area were very few, so you enjoyed exclusive benefits. But now the condition is different. Bird houses are everywhere. So can you still enjoy the benefits exclusively?

Five years ago, as long as you played any imitation bird sounds or applied artificial aromas, you could easily attract swiftlets. After five years, due to keen competitions, apart from imitation bird sounds and artificial aromas, modern scientific methods have to be utilized in order to stand out among the other bird houses and grab attention from the swiftlets.

The purpose of this publication is to provide the readers the practical concepts of swiftlet farming. The targeted group is mainly investors who are willing to learn more about swiftlet farming. We wish to pass on the following concepts through this book:

To enable people who are interested but have not invested in the swiftlet farming industry to understand thoroughly the operation of this industry.

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To overthrow traditional mind-sets and belief that swiftlet farming is just about building a bird house, leaving it and you will obtain good harvests for the rest of your life. Approximately 75% to 80% of swiftlet farm investors fail because they think that this career does not need hard work.

To focus on practical techniques and skills necessary for successful swiftlet farming, so that:

People who want to invest in swiftlet farming understand how to build a proper bird house and reduce the chances of failure.

Unsuccessful investors know how to respond, make up and reform.

Swiftlet farmers who have succeeded can take this book as a reference to improve themselves.

To enable investors to have the basic concepts of swiftlet farming by reading this book. From this book, the investors can obtain general knowledge that enables them to solve some general problems by themselves besides getting advices from professional consultants.

To reduce the chances of swiftlet farming failures due to ignorance. Swiftlet farming techniques have long been held very close to the chest by successful farmers. Many investors failed as a result of insufficient information or proper knowledge.

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## Preface

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From this book, readers understand that investing in swiftlet farming does not guarantee a 100% accomplishment. However, the probability of failure can be minimized by using different types of scientific methods. We have to be prudent while investing in swiftlet farming. Do not ever think that we can take a share of the profits because others are enjoying it.

By applying the correct swiftlet farming techniques and technology, you can also put expertise to good use and make a million dollars from swiftlet farming.

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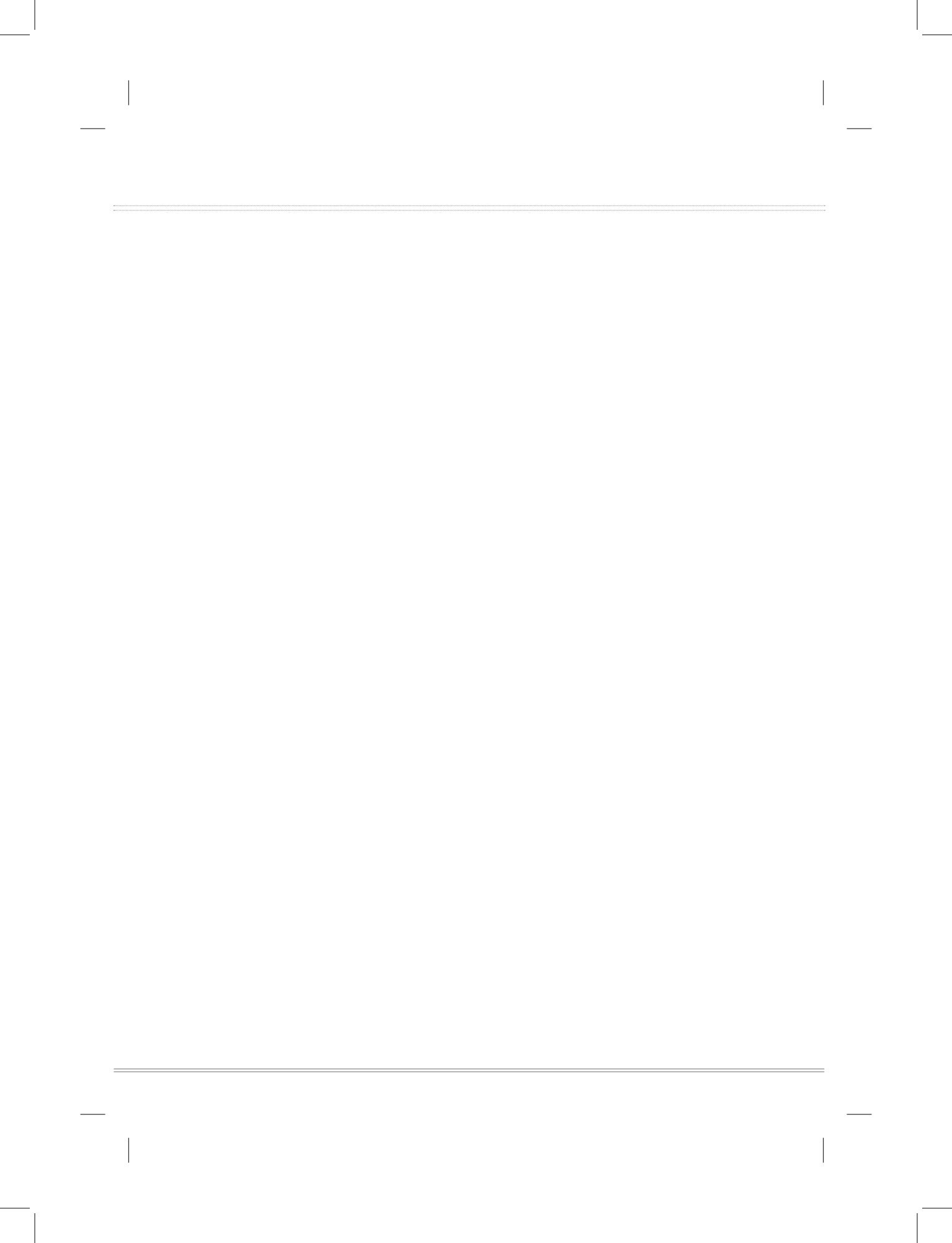
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# CHAPTER ONE

The Great Heroes  
Behind  
The Scenes

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## Swiftlet species

There are many species of swiftlets and swallows, estimated at 82 different species worldwide. Among the species, 11 of them exist in Malaysia. The common species in Malaysia include the commonly known White-nest swiftlets (*Aerodramus Fuciphagus*), Black-nest swiftlets (*Aerodramus Maximus*) and Glossy swiftlets (*Collocalia spp.*). Among them, bird nests of the White-nest swiftlets have better quality and market value. Apart from that, White-nest swiftlet is the only species using echolocation sound as navigational guide in the dark.

It is commonly misunderstood that swallows reposing on electric wires are one of the swiftlet species. But in fact they are not. Those are swallows. Their nests are incomparable with those of Edible-nest swiftlets.

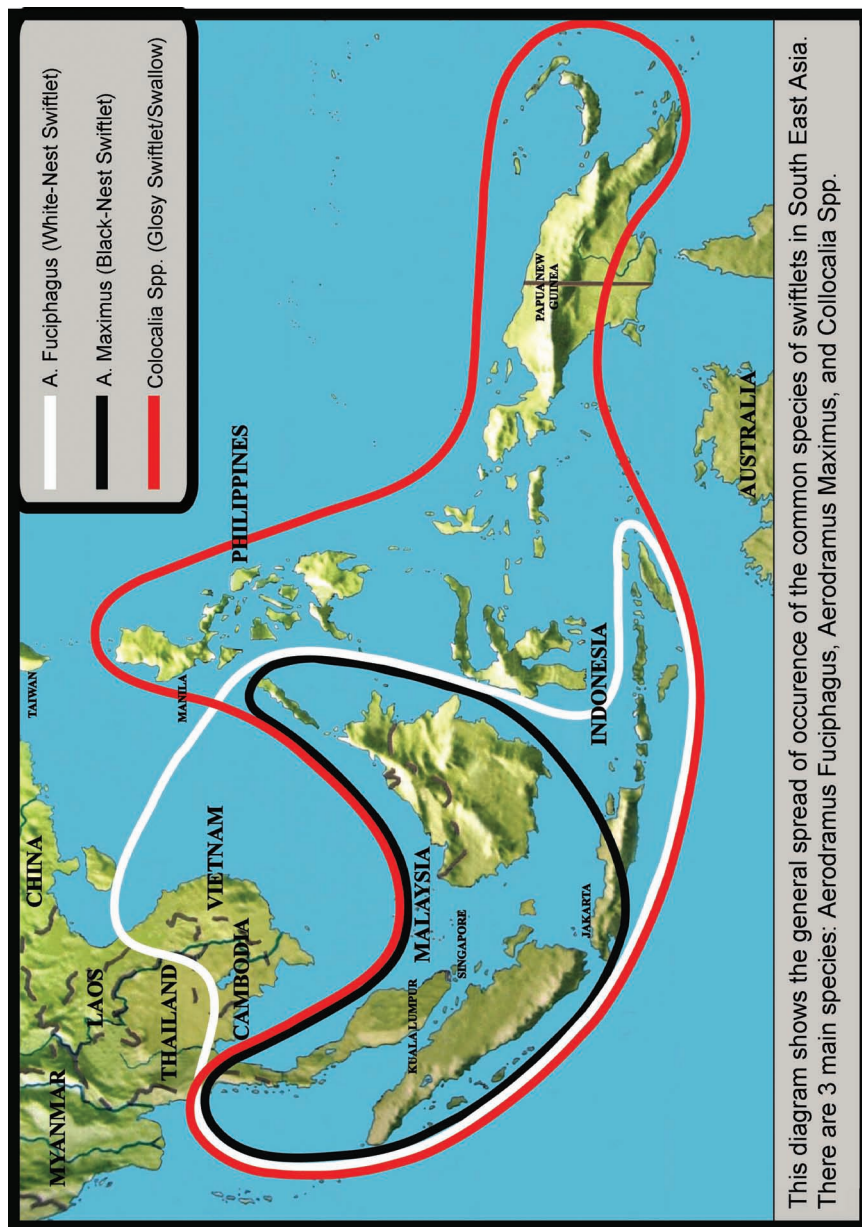
What about Black-nest swiftlets? This species of swiftlets normally inhabit in mountainous areas or caves. You would not discover them in bird houses. Bird nest of Black-nest swiftlet is bigger in size, black in colour, with more feathers attached to the nest. Thus, it is colloquially known as feather nest or black nest.

Generally, nests of White-nest swiftlets which are high in quality and nutritional values are highly sought-after.



## CHAPTER ONE

### The Great Heroes Behind The Scenes





White-nest swiftlet



Swallows

**CHAPTER ONE**  
The Great Heroes Behind The Scenes

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Cave swiftlet community



Cave swiftlet/ Black-nest swiftlet



These are swallows that can be seen reposing  
on electric wires

## CHAPTER ONE

### The Great Heroes Behind The Scenes

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#### **The habits of swiftlets**

- The natural instinct of swiftlets is to seek the easiest way of survival. They may opt to roost at the areas nearby their food supply, without having to go further for food.
- Once decided to settle in one place, they will not easily leave anymore, unless their habitat or life is being threatened.
- They are loyal to the spouse, and will generally not simply leave their nests even if the spouse dies.
- Swiftlets will not excrete in the nest, unless by accident. The interesting thing is even when a nestling wants to excrete, it will position its butt out of the nest. This shows that swiftlets are particular about hygiene.

#### **The formation of a bird nest**

- Swiftlets build their nests when they are about to lay eggs. So how is a bird nest formed? A bird nest of swiftlet is built from the secretion of a special gland called salivary gland located near the mouth of the bird, and some feathers as reinforcement. First of all, a swiftlet regurgitates its saliva on one corner of the nesting plank, and then bond it to another corner. A complete nest requires many strains of such repeated construction, reinforced with feathers pulled from its partner!
- Spittle of swiftlet has very high consistency. Thus, a bird nest hardens after it dries. A raw bird nest is hard and rigid.
- The aim of swiftlet building its nest is for breeding. Furthermore, a swiftlet only lays two eggs each time, normally three to four times annually. Generally, swiftlet's eggs are very small. The bird nest is the place for swiftlets to lay eggs and brood. However,

not every egg will be hatched successfully. Sometimes due to excessive human disturbances, a swiftlet would rather drop its eggs onto the ground to protect its offspring. In other cases, some of the eggs might be hunted by their predators.



Swiftlet normally lays two eggs each time

- If an old bird nest is not being harvested on time, the swiftlet will build a new layer on top of the old nest when it is about to lay eggs again. This forms an overlapping bird nest. In this case, the value and quality of the bird nest will drop for sure. Therefore, delayed bird nest collection will result in unnecessary losses.

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The Great Heroes Behind The Scenes

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Delayed bird nest collection will result in overlapping nests,  
causing their value to drop

- Among so many types of bird nests, those of the White-nest swiftlets have better quality.

### **How to identify a good bird nest?**

There are many varieties of bird nests in the market; some are yellowish, reddish, whitish, et cetera. So, how do we differentiate the quality and value of a bird nest?

#### **(1) Shape**

- There are different shapes of bird nests. The common types are triangular corner nest, bird nest in broken form, in cake form, and of course the beautiful cup shape form.



Swiftlets normally opt for triangular nesting corners to build nests

- The shape will determine the commercial value of the nest.
- The more perfect the shape of the nest, the higher is its value.
- Even though bird nests vary in shapes, their nutritional value is still the same.



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Better shaped cup nests (Red nests) from cave



The popular White nests in the market

(2) Other factors

- Bird nests built by more matured swiftlets are normally bigger in size.
- Bird nests formed under proper temperature, humidity and conducive environment possess better shapes and therefore command higher commercial grade and value.
- Perfect shape without breakage; for instance a complete bird nest cup (extremely hot environment can cause a bird nest to break).
- Whitish in appearance (Ammonia produced by droppings and dusts in the air will cause the nest to turn slightly yellow).
- Less feathers or impurities (Easy to clean up)
- Timely harvested fresh bird nests (This can avoid overlapping of nests which causes their quality to drop).

Processed bird nests must be done without the use of chemicals or bleaching.

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# CHAPTER NINE

Frequently  
Asked  
Questions  
(FAQ)

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## CHAPTER NINE

### Frequently Asked Questions (FAQ)

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#### 1. What is the ideal height of a bird house? What is the maximum and minimum ceiling height? If the ceiling height of a bird house is below 8 feet, are there any bad consequences?

The optimum internal height of a bird house from floor to ceiling is 10 feet. Heights between 8 feet to 12 feet are within good range.

If you try to imitate the natural cave by having, say a 20 feet high ceiling and nesting planks, imagine the extra wastage of cost and the subsequent difficulties in maintenance and harvesting of nests!

If the height is less than 8 feet, there will be some restriction on the free and comfortable manoeuvring of swiftlets.

If nesting planks are low, dusts and water vapour on the floor will be easier to come in contact with them, resulting in lower grade nests and moulding planks.

#### 2. Is a bird house more competitive if it is taller and more spacious?

No. Swiftlets do not choose the tallest and the most spacious bird house to roost. There are many factors involved in deciding whether a bird house is competitive or not. They are discussed in details in this book.

Nevertheless, an adequately taller and more spacious building do stand an advantage because being taller, you have less obstructions; being spacious, you have the luxury of allocation of space in the bird house design. In any case, for a standalone bird house, we would recommend generally that a 3-storey building 25 to 28 feet wide, 65 to 80 feet long would be optimum, with variations to be made to suit individual site conditions.

3. Is it better to start a bird house converted from a dilapidated old shop building than from a new building because swiftlets prefer old buildings?

Old and dilapidated shop houses are not recommended as they may have rotten wooden structures infected by termites or other predators. It is not true that swiftlets prefer old houses.

To ensure that a bird house is successful, choosing the right location for a start is more important than the house being new or old.



Old and dilapidated shop houses

4. With a small capital, can I build a small standalone type bird house?

Yes, of course. Similar type of bird houses can be found in Malaysia. Small bird houses have to adopt different designs to suit.

**CHAPTER NINE**  
Frequently Asked Questions (FAQ)

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Small size bird houses

5. Is it necessary to build a pond next to the air well?

No, it is not necessary. Water ponds in a bird house or next to the air well give rise to a number of problems; leakage, fungal and bacteria growth, young swiftlets falling into the ponds, etc.



It is better not to build a pond inside a bird house.

6. Does a pond inside the bird house help attract more swiftlets?

Not necessarily. Its main function is to provide extra humidity.



Water pond in the bird house will result in many hygienic problems.

7. Does growing vegetation or plants on the rooftop of a bird house help?

No. Plants on the rooftop of bird house provide shelter for predators, making swiftlets feel unsafe.



Growing plants on rooftop of bird house can attract predators, making it unsafe for swiftlets.

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#### 8. One or multiple entrance holes?

A new bird house with monkey house type could initially open two or three entrance holes. Observe for a period of time which hole is preferred by swiftlets and eventually cover up the other two holes to reduce light intensity and air ventilation.

#### 9. Which direction should an entrance hole face?

The entrance hole should be facing the swiftlets' path of return, which can be observed just before dark.

Even if the entrance hole is facing west, priority should be given to the swiftlet returning path in deciding the entrance hole direction.



This is not an ideal entrance hole. The flight path is blocked by the monkey house next door, making swiftlet's navigation difficult.



10. What are the precautions to take when designing entrance holes?

Whether you are designing air well, monkey house or window type entrance holes, firstly you have to take note that the entrance hole must be obvious. The entrance hole must not be blocked by any tall objects, be it trees or buildings directly in front.

As for air well, which is facing the sky, the light intensity must be reduced by partitions until it is dim inside the bird house.

- As water will collect at the bottom of the air well, proper drainage must be provided.
- Tweeters for air well must be water resistant.



Trees located too near to the bird house will obstruct swiftlets' flight path and encourage intrusion of predators.

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11. Should the second hole be opened on the left or right-hand side?

The direction of the second hole of a bird house has to be fixed based on the flight paths of swiftlets. First of all, we have to examine or observe if the swiftlets are flying in clockwise direction or counter-clockwise direction. From this we can determine whether the second hole should be opened on the left or right-hand side. If there is sufficient space in the bird house, it will be better to open one hole each on both the left and right-hand side in order to match the clockwise and counter-clockwise flying directions of swiftlets. Certainly, this method is not suitable for bird house with small space. Otherwise, the light intensity in the bird house will be too strong.

12. How to design the entrance holes befitting a bird house on agricultural land?

Different types of entrance holes suit different bird houses of different locations. As a result swiftlets at a particular location may be more accustomed to the particular type of entrance hole normally used in bird houses there.

For a new bird house to be built in the vicinity of existing bird houses, it is advisable to follow the customary practice of the region.

However, if you have the luxury of land on an agricultural plot and your bird house is reasonably spacious, it would be an added advantage to have two different entrance hole types, e.g. one monkey house type and the other air-well type, located at two ends of a longitudinal building.

13. Swiftlets return from the west, so does the wind direction.  
How to decide on the facing of the entrance hole?

Under such circumstances, the priority is on the returning paths of the swiftlets. Strong winds do not blow every day. Furthermore, wind direction changes from time to time. The number of ventilating holes in the bird house may be reduced to avoid the excessive air flow in the bird house due to strong winds.

14. Do swiftlets fly in the direction of tweeters or walls after entering the entrance hole?

After entering the first entrance hole, new swiftlets will tend to hover in the roving area, within restricted walls. Having entered the second hole, they will be further attracted by the sound from tweeters.

15. How to attract swiftlets to stay on the ground floor of a 3-storey building?

For a 3-storey bird house, most swiftlets would build their nests on the highest and the first floor before choosing the ground floor (given other environmental conditions such as temperature, humidity etc are generally the same for the 3 floors.) The reason being the ground floor has a longer escape route in case of emergency. Being a new bird house, swiftlets do not feel secure.

To overcome this problem, open sufficiently large (say 12'x12') LAL (Lubang Antara Lantai) on floors which would allow swiftlets to have smooth flight paths for easy entry and easy (quick) escape if necessary. Install dim lights at the LALs to guide the swiftlets if it is too dark.

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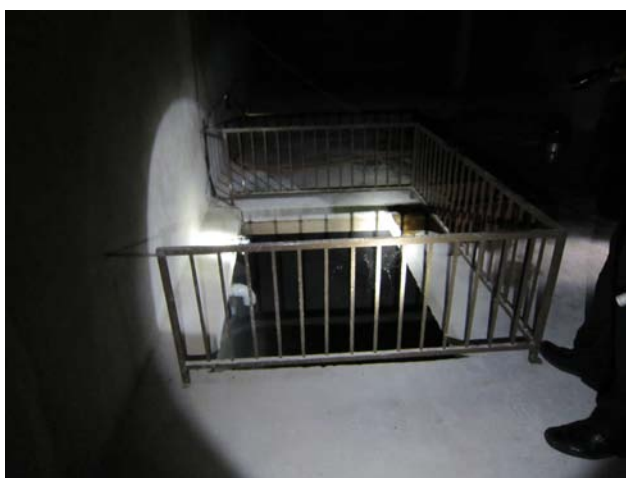
A small LAL restricts swiftlets from flying to the lower floor.

**16. Where should a LAL be built?**

A LAL should be opened at a distance on a smooth flight path after the second entrance hole. The size should be at least 8 feet x 8 feet (12 feet x 12 feet is ideal.). The LAL should be built in front of the partition and not behind it. This opening serves as a channel for swiftlets to fly to the ground floor. Hence, there must be no railings or any other blockages in the hole so that the flight path of swiftlets is not blocked.

**17. To avoid anyone falling into the LAL, is it alright to build railings surrounding the LAL?**

Yes, you may build safety railings or bricks surrounding the LAL. But the height should not be excessive or it will obstruct the flight path of swiftlets. The ideal height is 4 inches to 6 inches from the floor slab.



Excessively high railings obstruct the flight paths of swiftlets

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18. Why swiftlets keep hovering in the roving area but not willing to enter the second entrance hole or the LAL?

There could be a few reasons why swiftlets keep hovering in the roving area without entering the 2<sup>nd</sup> entrance hole:

- The second entrance hole is not obvious to swiftlets, probably because the walls in the roving area are painted too dark and the second hole is also dark. As a result, swiftlets are not able to differentiate the location of the hole. A simple remedy is to paint a white strip around the edges of the second hole.
- The internal sound is not as attractive as the external sound.
- The roving area is too spacious. Swiftlets enjoy hovering in the roving area.

19. Is it necessary to have partition rooms in a bird house?

The main purpose of a partition is to reduce the light intensity in the bird house. If light intensity is well controlled, there is no need to add more partitions, especially in a new bird house.

20. Will soundproofing system and echo bring any effects to the occupancy of swiftlets?

Try to avoid having too much of echo effect in a bird house because it affects the echolocation function of swiftlets. As for soundproofing, every bird house has to be equipped with a sound insulation system. This is to prevent swiftlets from being disturbed by noise outside the bird house. Heat insulation system designed for a bird house possesses sound insulating effects too.

21. What is natural ventilation? How to design a natural ventilating hole? How to arrange the ventilating holes? How to expel heat from the ventilating holes?

Natural ventilation is the natural circulation of air without a mechanical ventilator. As hot air rises, vent holes should be opened at a higher level below the roof. While holes which bring in cool air should be opened at lower places. It is not necessary to have many ventilation holes in a new bird house. Take a 20 feet x 70 feet bird house as an example, if natural ventilation holes are used, there shouldn't be more than 20 of them. If there are too many ventilation holes, the temperature outside and inside the bird house will be the same.

22. What is the consequence if a 4-inch PVC ventilation hole is not properly fixed?

If the PVC ventilation hole is not properly fixed, it will allow other types of birds such as doves or mynah birds to build nests and lay eggs and even excrete in the holes. Bear in mind that swiftlets love their own community but repulse other types of birds. The PVC pipe opening must be covered with wire gauze or ready-made bird house ventilation caps.



Other types of birds lay eggs in the ventilation hole, causing disturbances to swiftlets in the bird house.

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**23. Install a fan in the bird house to reduce the temperature. Does it work?**

No. You are just moving air with the same temperature in an enclosed bird house area. Furthermore, it is not advisable to have strong air flow in a bird house.

**24. What does it mean by an ideal light intensity of bird house?**

The ideal light intensity of a bird house has to be adjusted according to different areas in the bird house. For instance, the entrance hole and roving area has to be bright enough to attract swiftlets. The nesting area has to be sufficiently dark, to as low as 0.02 to 0.06 LUX.

In any case, our experience provides us a rule of thumb; i.e. Do not allow the nesting area to be completely dark. Allow some light to penetrate, such as from the 4-inch PVC ventilation holes.

**25. How should I control the light intensity of a bird house? How to adjust if it is too bright or too dark?**

The light intensity of a bird house is mainly controlled by several methods:

- The type of entrance hole determines the light intensity of the bird house. For instance, there is more light from air well entrance, and less from monkey house entrance.
- The colours of wall paints. White paint is brighter and has more reflections whereas dark paint is the opposite.
- The further away the area is from the main light source, i.e. the main entrance area, the darker it is. Hanging partitions or full height partitions are normally used to achieve the required brightness for a particular area.



If the bird house is still very dark, you can install small light bulbs or utilize lights from ventilation holes to brighten up to suit.

26. If my bird house is very small and the light intensity is hard to be controlled, what is the solution?

Design smaller entrance holes , i.e. 1.5 feet (width) x 0.2 feet (height). Ideally, 3 feet (width) x 2.5 feet (height).

27. Is it necessary to install lights in the external and the internal compound of the entrance hole?

The purposes of installing lights at the external wall near the entrance hole are to deter some predators and also to enable swiftlets to easily detect the hole when they return late. While lights installed in the roving area of the bird house are to prevent predators entering at night. Generally, the lights in the roving area of the bird house are switched on only after swiftlets are back to their nests.

28. How to choose nesting planks? Is it necessary to use corner boards?

The common nesting planks used in Malaysia is Meranti. Meranti can be categorized into many types and different origins. Those available in the market vary in quality, hardness and of course, prices.

Since these planks, once installed, are to last for decades, choosing a good quality dark red, properly dried harder Meranti variety makes sense, even if it is higher in price.

Generally, planks in the market come with ready cut grooves.

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"Dark red" (diagram above) and "Light red"  
(diagram below) in the market.

On the question of corner boards, it is better not to install them for new bird houses. Swiftlets prefer to build corner nests if there is a choice. Our initial objective of a new bird house is to attract as many swiftlets to the bird house as possible, and not for the quality of an individual nest.

When the population of swiftlets and nests in the bird house have reached a satisfactory level, corner boards are then installed for corner nests harvested. Eventually, there will be no more corner nests, but higher valued, better shaped nests.



Corner boards

29. Does it help if wooden nesting planks are replaced with aluminium, marble or even cement boards, so as to prevent fungal growth on the wood?

It is not necessary to use aluminium, marble or cement as nesting planks in a bird house. If the nesting plank is mouldy, then we have to find out the reasons first and solve the problem. Fungal growth on nesting plank is mainly due to the badly-controlled humidity in the bird house. Given the condition, the walls and bird droppings inside the bird house will also grow fungi. Mouldy environment affects swiftlets negatively.

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### Frequently Asked Questions (FAQ)

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Use of aluminium sheets as corner boards or nesting planks is hazardous because aluminium oxide will infuse into bird nests, and if consumed, may cause heavy metal poisoning!

Marble is not a choice either because of its weight and its difficulty to attach to the walls. In humid conditions, fungi will still grow on it. Concrete slab is not much better. Studies have shown that natural wood is still the most suitable material as nesting planks.

The problem of fungal growth on wooden planks can now be easily solved by spraying MDK Fungus Killer readily available.

#### 30. Is there any difference between a 5-inch and a 6-inch nesting planks?

Yes and No. We normally use 6 inches wide nesting planks. But for a new bird house, there isn't much difference between a 5-inch and a 6-inch nesting planks. Only when the nesting planks are almost occupied, some swiftlets will build two levels or even three levels of nests on the same plank. A 5-inch nesting plank is not able to support two levels of bird nests compared to a 6-inch. This scenario of an almost fully occupied bird house is rare. The second answer is therefore No.

#### 31. Is it necessary to wash nesting planks before installation?

Generally, nesting planks should be air-dried (AD) or kiln-dried (KD) before they are sent to the bird house. It is not necessary to wash them before installation. Washing the planks may result in mould formation after installation.



Nesting planks must not be wet before installation.

32. Should nesting planks be arranged in rectangular or square shape?

The minimum distance between nesting planks is 1 foot (30 cm). As long as the distance between your nesting planks exceeds 1 foot, it will be fine.

33. What is an ideal measurement of the second entrance hole?  
How many tweeters should be installed?

The ideal opening for the second entrance hole is 4 feet x 4 feet. The number of tweeters to be used depends on what kind of tweeters you are using. If you are using MDK SKY 115 tweeter, then you only need 2 tweeters. If you are using ordinary tweeters, then you might need 4 or more.

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MDK SKY 115 tweeter

34. What kind of tweeter should be used in bird houses located nearby residential area in order to reduce the noise?

Bird houses situated nearby residential areas need only to use the Bazooka. Direct the bazooka towards the returning path of swiftlets and also the area with a large group of swiftlets. At the same time, reduce the volume of the imitation bird sound. This is because the Bazooka will concentrate the sound in the direction you want, yet it will not spread sideward to disturb the residents nearby. This method has been tested in a few bird houses with positive results.



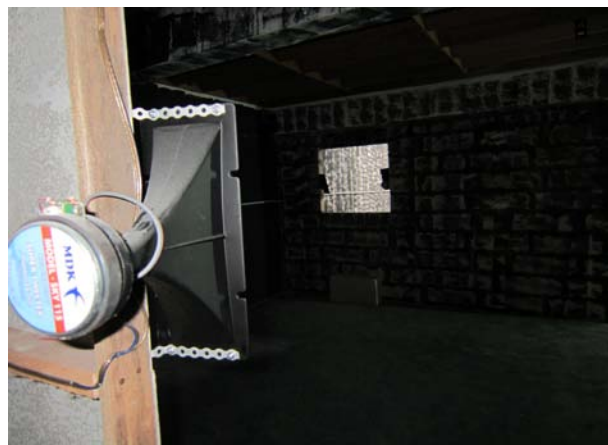
The Bazooka

35. How to install or arrange an external sound tweeter, hexagonal sound tweeter and internal sound tweeter?

There is no standard arrangement for internal sound tweeter. As for external sound tweeter, please refer to the following diagrams for their arrangements:



Installation of the hexagonal sound tweeter.



Arrangement of the internal sound tweeter.

## CHAPTER NINE

### Frequently Asked Questions (FAQ)

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36. How to differentiate between the external sound, luring sound, internal sound and hexagonal sound? How to identify if it is a good or bad sound?

The late Mr. Deng Xiao Ping stated that, "It doesn't matter whether a cat is white or black, as long as it catches mice." Applying the same principle, no matter what kind of sound it is, as long as it can attract swiftlets, it will be a good sound.

Return to the subject, the external sound is normally pure without too many swiftlet sounds. It normally consists of only 1 or 2 swiftlet sounds.

How about the luring sound? The internal luring sound is basically a mixture of more young swiftlet sounds and a little of matured swiftlet sounds to lead swiftlets into a bird house.

The main function of the internal sound is to accelerate swiftlets to build nests in a new bird house. Therefore, the sound must be peaceful and not noisy compared to an old bird house.

The external sound and hexagonal sound can be of the same sound. The hexagonal sound can use computer-edited sound, while the external and internal sound must be the original version.

So how to differentiate between good and bad sounds? A good sound is the one which can attract many swiftlets and promote interest in swiftlets to explore a bird house. Its results can be seen within a short period of time. However, a good sound may become a bad one if too many bird houses in the same locality turn on the same sound.



37. What kind of combination can produce the best imitation bird sound?

The best imitation bird sound has to be played with good quality sound equipment, including players, connecting wires and tweeters.

Interior quality equipment produces interior sounds.

For external sound, the number of tweeters required is not big. There is therefore the tendency to cut down on quality and cost, by using, for example, a cheap and small sound player instead of a quality one. In such a circumstance, even if the imitation bird sound is the best, the resulting sound broadcasted at the tweeter is compromised.

Next is the quality of connecting wires. Their quality varies substantially from wire to wire.

Insist on good quality wires instead of leaving it to the contractor to decide for you.

The distance between the player and the tweeters at the other end is also an important factor to consider. The longer the connecting wire, the higher is the impedance in the wire.

Excessive wire length and / or inferior quality wires all result in distortion of sound produced.

Finally, use good quality tweeters such as MDK Sky-115 tweeters.

**CHAPTER NINE**  
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Having equipment with good quality is one of the important requirements for good imitation bird sound.

**38. Is it necessary to play an external sound inside the bird house? If yes, where should it be played to give better effects?**

Generally, we don't encourage playing an external sound inside the bird house. It is not because an external sound cannot be used in the bird house, but if we accidentally use a bad external sound as the internal sound, then it will be disastrous for the swiftlets in the bird house.

However, if we have been using a good external sound for a long period and then use it as an internal sound, there will be no negative effect.

Where should it be played to give better effects? Install external sound tweeters at the following positions:-

- A short distance after the 2nd hole, facing the 2nd hole.
- At the edges of partition along swiftlet flight path.
- At the end of the bird house

39. Can an internal sound be used to replace an external sound?

Most of the internal sounds are noisy and not suitable to be used as the external sounds. Nevertheless, there are still a small number of pure and graceful internal sounds which can be used as external sounds. When you are replacing an external sound with an internal sound, the swiftlets attracted to it will be the more matured ones which can build nests rapidly. Even so, we still encourage you to use external sounds with proven efficacy.

40. Should external sound, internal sound and hexagonal sound be changed? How often should it be changed?

Indeed, the external sound has to be changed on a fixed schedule to avoid swiftlets losing interest in it. If the conditions of a bird house are not conducive, no matter how you change the external sound, it will not help. Once swiftlets feel uncomfortable with a particular external sound, they will not be attracted to it anymore. In contrary, if the conditions of bird house are conducive, then the effective period of an external sound will be prolonged. If you wish to keep an external sound effective for a long term, use quality external sounds and change the sound every two days or a week. For automatic sound change, use an automatic sound changer available in our product range. If you are unsure about the effectiveness of the external sound, it is advisable not to change it.

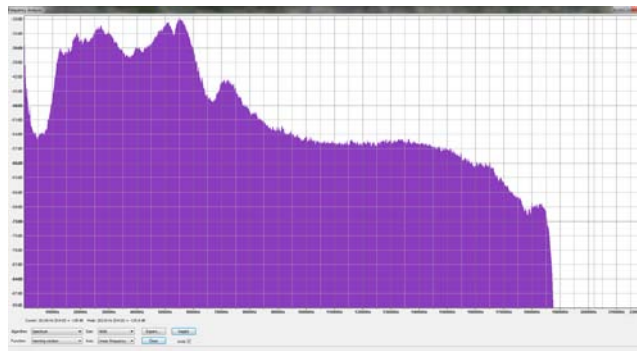
As for the internal sound, unless we are sure that the new internal sound is better in quality than the old one, or else don't simply change it. For hexagonal sound, as long as you can find a new and suitable hexagonal sound, then you may try it without harm.

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41. What does it mean by an ideal imitation bird sound frequency?

The audible sound for swiftlets has a frequency range between 1 kHz to 10 kHz, similar to that of humans. Imitation bird sounds with too high or too low frequencies can hardly attract swiftlets. We have to play imitation bird sounds with the correct frequencies so as to attract swiftlets successfully.



The frequency chart recorded from swiftlets in a bird house

42. How to adjust the volume of an external sound, internal sound and hexagonal sound?

We have to adjust to a higher volume when playing an external sound outside the bird house. On the other hand, the volume should be lowered inside the bird house. The volume of an external sound varies according to the areas. If there isn't any bird house nearby and you are using a good quality tweeter, actually you don't need to adjust to a very high volume in order to attract swiftlets. In fact, too high a volume may scare the swiftlets away. But if your bird house is situated in a very competitive area, then you have no choice but increase the volume. Or else due to the louder sounds played by your neighbours, swiftlets are diverted there. Therefore, if there is a choice, avoid swiftlet farming in a very competitive area.

The number of internal sound tweeters is more than external sound tweeters. Therefore, it is not necessary to unduly increase the volume of the internal sounds. Instead, search for the optimum sound level most suited to swiftlets by increasing the volume in stages and observe the reactions of swiftlets.

As a reminder, every recorded imitation bird sound has different volumes when played. Adjustments have therefore to be made with each change of sound.

43. Is it okay if the design, external sound and internal sound imitate the old bird house next door?

If your neighbour is a successful bird house and all its designs meet the requirements, then you may copy them if you can, except the bird sounds. Your imitation bird sounds must be unique, or else you will lose your forte. You have to have your own advantages to succeed in swiftlet farming. In fact, by being next to a successful bird house is not an advantage, but a challenge!

44. Swiftlets keep hovering around hexagonal tweeters but do not enter the entrance hole. What is the reason?

This is a common phenomenon in new bird houses. Curious swiftlets are starting to get to know your new set up.

In other cases, the likely causes are:

- The volume of the hexagonal sound is louder than the external sound. (Adjust it to a balanced level.)
- The external sound is not graceful or attractive enough.
- Unsuitable choice of external bird sounds; some bird sounds only attract swiftlets but they do not lead them into the bird house. While others have the attributes of both.

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- The main entrance hole of the bird house is too small. Swiftlets are scared to fly into it.

#### 45. How to eliminate the smell of cement in a new bird house?

Leave a pail of 'cement odour remover' in the newly completed bird house for a couple of weeks. When cement odour has been largely eliminated from the bird house, start to use Aroma.



For removing cement odour in new bird houses.

#### 46. How to create bird smell in a new bird house?

Aromas in the market can be used in a new bird house to imitate an odour of the old bird house. If the general conditions of the bird house are good, coupled with a suitable use of aroma, you can expect faster results.

#### 47. After changing to a new Aroma and internal sound, how long do I need to observe if they are suitable to swiftlets?

Observing for around three days would be sufficient to tell whether the swiftlets accept or reject the smell. It is better to test new bird sounds or Aromas in the morning. If they are repelled by the swiftlets, you still have time to make changes before the swiftlets return in the evening.

48. Is there any enhanced hormone to speed up the mating of swiftlets?

Yes, there is. But do not expect swiftlets to immediately build nests after you apply the hormone.

49. Is it necessary to use fake bird nest?

A fake nest acts as a catalyst to encourage swiftlets to quickly settle down and build nest in preparation of laying eggs. The use of fake nests in a bird house certainly helps to speed up the growth of swiftlet population.



Polystyrene acting as fake bird nest.

50. Should I place swiftlet's droppings in a new bird house?

Placing swiftlet's droppings inside a new bird house is a traditional method. Nowadays, many people use the ready-made aromatizers to replace the swiftlet's droppings. Aromatizers are more hygienic and they can also eliminate the dusts and pests in the bird house.

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**51. Should the bird droppings in a bird house be cleared?**

Generally, a new bird house does not have too much of excrements. No clearing is required. When the number of bird nests is more than 100, clearing and keeping the floors hygienic at regular intervals becomes necessary. Clearing and keeping a hygienic bird house has the advantages of clean and quality nests; more conducive environment for swiftlet's population growth; and finally healthy for us who enter the bird house.



Swiftlet's droppings

**52. How to observe the swiftlet's droppings to find out if the swiftlet has decided to stay?**

By observing the swiftlet's droppings, you can find out if swiftlets have started to stay inside a bird house. If you discover only a few swiftlet's droppings without feathers inside, that means the swiftlets only come for visits and have not decided to stay. But if you find piles of swiftlet's droppings mixed with feathers, then congratulations, there are already swiftlets living in your bird house and they will build their nests soon.





By observing the swiftlet's droppings, we can know the growth conditions of the bird house.

Diagram on top: sparse swiftlet's droppings indicate the swiftlets haven't decided to stay;

Diagram below: piles of swiftlet's droppings mixed with feathers indicate the swiftlets have already stayed.

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#### 53. Why the numbers of swiftlets visiting or returning to the bird house increase or decrease suddenly?

If the number of swiftlets increases suddenly overnight, it could be due to the following reasons:

- You applied an attractive external sound or a nice Aroma on that day.
- Bird houses nearby might be facing disasters. Their swiftlets here to take temporary refuge. They may eventually leave when the situation becomes normal.
- Far away visitors unable to return home in time. They put up a free night stay at your bird house. Thank you very much

The reasons for a sudden drop of swiftlets returning to the bird house:

- Predator may have intruded into the bird house. For example, a snake or an owl.
- The wrong use of a bad bird sound or Aroma on that day.
- Swiftlet of your bird house fly too far to hunt for food and have put up a night in somebody else's bird house somewhere. This is only a temporary phenomenon. Nothing to worry about.
- Bird sound interruption due to electricity supply cut or faulty player.

54. Recently, many new bird houses are built near my bird house. How do I maintain my competitiveness?

Be more diligent in monitoring to ensure that all necessary conditions required for a successful bird house are properly maintained. As mentioned, ensure the broadcasting of imitation sound is not interrupted unnecessarily; temperature & humidity range controlled; any instance of predators be dealt with immediately; regular clearing of bird's droppings; regular nest harvesting, etc.

55. How long does a new young swiftlet take to settle down?

It normally takes around 45 days for a new young swiftlet to settle down in a conducive bird house. If the conditions of a bird house are adverse, new swiftlets born in the bird house will also migrate out.

56. How to instil a sense of security for swiftlets?

Swiftlet feel more secure in a bird house with colonies. On the other hand, a new bird house is an uncertain place for swiftlets. Additional precautions have to be considered for new bird houses:

- Remove tall trees surrounding the bird house within 30 feet of the compound.
- Retain from entering the bird house as far as possible for new bird houses.

57. What are the reasons which normally cause swiftlets to leave a bird house?

Some common reasons why swiftlets leave the bird house are:

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- The temperature inside the bird house is too high or too low.
- The bird house is too humid or too dry.
- The most common situation is swiftlets are threatened by predators for a long time but not resolved.
- The sound system is spoiled; the amplifier or player is broken but not replaced; the wire is broken and the tweeters damaged, etc.

In order to prevent swiftlets from leaving the bird house, early detection of the possible causes is vital. It is therefore obvious that a bird house should not be left unattended and unmonitored. If early detection and subsequent remedial actions are taken, swiftlets will slowly come back and remain long in the bird house again.

**58. Why some corners of a bird house are occupied by a large group of swiftlets but others not?**

Swiftlets live in colonies. Birds of the same colony will build nests together in the same area. If some corners of the bird house are without swiftlets, that particular area might be too bright or too hot, or are too exposed so as to be insecure for swiftlets. In any case, consider the more likely scenario that the overall swiftlet population in your bird house is still much to be desired!

**59. Which place or corner of the bird house is most preferred by swiftlets in a new bird house?**

In a new bird house, it has been observed that swiftlets build their early nests at places satisfying the following conditions:

- Secure; at a distance not too far from the main entrance hole so that quick escape is possible.
- Sufficiently dark and secluded
- Suitable temperature & humidity range
- Near to a good sound tweeter

60. How to attract more insects to a bird house?

The best answer of course is to build the bird house at a place with abundant insects. However, this is not always possible, especially with existing bird houses. A solution is to produce insects from “insect powder” available in the market to supplement swiftlets’ food supply.

Alternatively, an ‘insect house’ can be built alongside the bird house adjacent to the roving area to produce abundant insects.

61. Will it affect the swiftlets if insect powder is used in the roving area?

Insect powder is an insect producing food producing insects as additional food for the swiftlets.

As long as it does not produce pungent smell, there is no problem for it to be in the roving area.

62. Why are there many feathers in the bird's droppings when swiftlets start building nests?

When building nests, swiftlets pull out their partners’ feathers as reinforcement material for the nests. Some of these feathers drop to the ground.

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**63. If the bird nests in a bird house are burgled, will the number of new bird nests increase?**

Although there are reports that following a bird nest burglary, the rebuilt nests will increase in number by as much as 30%. However, the author has encountered both the situations of an increase as well as a decrease after the burglary. There is no available compiled statistics on this matter.

Whatever happens, the positive aspect is, most of the existing swiftlets will not migrate away because of a burglary.

**64. How often should bird nests be harvested?**

Bird nest harvesting should start when there are around 50 nests, collecting 10-20% of the number. Initially the interval is around 3 months, as the nests increase, collection can be made every month, or even once every 2 or 3 weeks.

**65. How should the bird nests be stored after harvest?**

There are two ways to store the bird nests after harvesting: Keep in the refrigerator or store in a cool and dry box. Take note that when you are using a refrigerator, the water content in a plastic container may cause the bird nests to be too humid. It is better to store the bird nests in a dry container. The most ideal humidity for the storage of bird nest is between 40% to 50% RH. Overly humid condition will cause the bird nests to become mouldy.

If the quantity of nests is substantial, a dehumidifier may be required in the storage room to control the humidity of the room to the required 40-50% RH range.

66. How to tell the difference between genuine and fake bird nests?

- A genuine bird nest has a stronger egg smell, similar to egg-white smell; a fake bird nest seldom has such smell.
- When a genuine bird nest is soaked in water, it expands and looks semi-transparent. Whereas when a fake nest is soaked in water, it does not appear semi-transparent, and some of its colour could be washed out if the nest has been dyed.



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There are various kinds of bird nests in the market. Remember to buy from a reliable person or company.

**67. Is there any way to attract cave swiftlets into our bird house?**

Generally, swiftlets staying in caves belong to a different species. They have different demands in terms of environmental conditions.

Hitherto, there isn't any workable method to attract cave swiftlets into our bird houses. Hopefully with technological innovations, there will be ways to do it in the future.





The author went to one of the caves in Sarawak to study the behaviours of cave swiftlets

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**68. How to conveniently observe swiftlets in the bird house?**

Install infrared closed circuit television cameras (CCTV) in the bird house.

**69. How often should I enter a new bird house?**

It is advisable not to enter a new bird house within the first two months of operation. After that you need to enter to check & monitor, e.g. pest control, aroma application or any other problems. For an old bird house you can enter and examine the house once every month or even more frequently.

**70. Is the insulation paint sold in the market really effective?**

The diagrams below show the experiments carried out on different surfaces. This particular heat insulation paint has been shown to be effective.



Before application (49°C).



After application (34°C).



Before application (43°C).

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After application (34°C).

**71. How to reduce nitrite contents of bird nests?**

- Clean the bird droppings in the bird house on regular basis.
- Avoid stagnant water in the bird house. You can use ultrasonic sprayer so that the floor won't get wet.
- Spray "Air Purifying Solution" in the bird house regularly.
- Use a "Bird Nest Nitrite Purifier" machine to purify bird nests during processing. This can effectively reduce nitrite and other toxic contents of bird nests.

## About the author

The author, Koay Miao Duo has great interest in the swiftlet farming industry. He started to participate in the research of swiftlet farming techniques when he was at the university. In 2009 after graduating with an Honours Bachelor Degree in Business Entrepreneurship, he dedicated himself fully to the swiftlet farming field and established MDK Swiftlet Sdn Bhd. Besides providing different types of swiftlet farming equipment and many innovative products which help in swiftlet farming, the company also helps many unsuccessful swiftlet farmers to find out the reasons and solve their problems. The practical results of the company and Mr.Koay himself have been recognized and highly looked upon by the swiftlet farming community.

The author is also the popular blogger of High Technology Swiftlet Farming (<http://mdk-swiftlet.blogspot.com>). He has been sharing his swiftlet farming skills and own experiences with the readers for the past several years and he is very much revered by the readers and clients.

As time goes by, science and technology keeps changing rapidly. Inevitably, the swiftlet farming industry will face new challenges caused by environmental changes. The author hopes to probe into the development of the swiftlet farming industry from scientific aspects and carry out scientific applications to solve the problems of unsuccessful bird houses. The author thinks that the failure in managing a bird house is not because of bad luck or fate of the swiftlet farmers, but lack of techniques and skills.

We believe that the author will bring more advanced techniques and surprises to the swiftlet farming industry in Malaysia, leading the industry to greater success.