

# Broody Control

Aviagen Turkeys Ltd ®



## Definition

- In the wild, the turkey female begins to lay eggs in the spring stimulated by the increasing day length. Once she has laid a clutch of eggs (10-15) a natural desire to incubate them takes over and she will sit on the eggs until they hatch some 28 days later. This is known as broody behaviour, caused by a build-up of natural secretions of the hormone prolactin in the bloodstream.
- Once a female becomes broody she ceases to lay eggs, which is not desirable in commercial production where high egg numbers are required. Broody control describes the husbandry techniques used to prevent turkey females from becoming broody.
- If broody females are not identified quickly and treated, they will stop producing eggs for the rest of the laying cycle.

## Objectives

To prevent the female from becoming broody so that egg production is maintained through extended lay.  
To treat any females that shows signs of broodiness.

## Background

Generations of selection have reduced the tendency of female turkeys to become broody. Nevertheless, without proper management, broodiness can still have a significant impact on overall egg production. This is most apparent in hot climates or where female housing; nest and management conditions are below standard.

In commercial conditions females will normally start to show signs of broodiness 3-4 weeks after the start of lay. It is, therefore, good practice to begin broody control (or prevention) in the 2nd week. Any sudden drop in egg production after peak lay is likely to be a clear indication that a broody problem has developed.

The most important aspect of successful broody control is prevention.

## Hot Weather

A big factor that can promote broodiness is hot weather and performance of female turkey can be impaired by house temperatures above 20 - 25°C so it's important to manage the house environment well during these periods.

A few ways to manage the internal temperature of a shed is as follows:

- Increase ventilation rates and lower thermostat settings at cooler times of the day to reduce latent heat and allow birds to recover from hotter conditions.
- Ensure all fans are in working order, belts are tightened and fan housings are kept free of dust.

- Minimise obstructions which may reduce air-flow: trim vegetation around the sheds, clean vent openings to remove dust accumulation, keep screens and light baffles clear of dust and feathers.
- Direct hanging fans so air flows across the birds. Air movement at bird level has a cooling effect by removing body heat from the birds, this can be achieved by providing vertical or ceiling mounted circulatory fans (1 fan per 120m<sup>2</sup> floor space, spaced 10-15m apart).

Egg production is often improved when there is a difference of at least 10°C between day and night temperatures. Maintaining this temperature difference is particularly important in hot climates to help control broodiness. In fan powered ventilation systems, this can be difficult to achieve especially in areas where high humidity occurs at night and evaporative cooling cannot be used. In well insulated naturally ventilated houses, it is also important to ensure that the ventilation rate at night is sufficient to remove heat accumulated during the day.

## Procedure

### General

Females should be encouraged to lay their eggs in the nest boxes (see management article – Nest Box Type and Management), as those which lay their eggs on the floor can be more difficult to treat.

Pens should be evenly lit and designed with as few corners as possible to discourage floor layers.

### Identification

Early identification of those females going broody is essential if they are to be treated successfully and egg numbers maintained. The important signs are:

- The broody female will spend a large proportion of her time on the nest if permitted.
- When approached she might display aggressive behaviours such as hissing, raised back/neck feathers and pecking.
- If the female is picked up and the oviduct everted (fig.1) an early sign of broodiness is the production of distinctive smelling faeces.
- As she becomes more broody the oviduct becomes dryer and harder to evert and the pelvic bones move closer together with the skin between the bones becoming taut.
- In the first three weeks of lay it should be possible to place three fingers between the pelvic bones (known as palpation), if the female is not broody.



Figure 1. Shows what a normal hen should look like when the oviduct is everted. A broody hen will be drier and harder to evert.

There are several systems that can be used to help identify broody females. The system chosen must be within the capabilities of the workforce because a system that is difficult to operate may not be done properly, or worse still, not done at all. Whichever method is used it is important to start broody control in the 2nd week of lay. Starting too early can affect the achievement of a good peak and starting too late will result in some birds already having gone broody.



For best results broody prevention should be practised every day.

A summary of broody identification systems is shown in Appendix 1. All systems can be successful when carried out properly.

### System 1 – Inspection

All females found on the nest either first thing in the morning or last thing at night (at least 20 minutes after last egg collection) should be inspected manually for broodiness. The birds can be inspected either in the nest (by palpation) or by removing it from the back of the nest so that the oviduct can be everted.

It is important to prevent the potentially broody female from evading the nest before it can be caught and inspected, therefore, it is best to have one person in front of the nest to prevent this. With this method it is necessary to have a nest box design that allows a bird to be either removed or inspected from the back of the box. This method cannot easily be used with automatic nest boxes, although a team of two people can palpate from the front of the nest and pass the broody female to a third person in the passageway.

The main advantage of this method is that, with trained personnel, it is very accurate and does not remove too many non-broody females from the laying pen. However, a disadvantage of this method is that it does not provide early identification of non-physical broody signs and may not work as well as other systems in hot weather.

### System 2 – Spray Marking

All females found on the nest, either at first egg collection in the morning, or last thing at night (at least 20 minutes after last egg collection) should be sprayed with a colour marker (see Figure 2). The following evening or morning, any birds on the nests that have the particular colour marker used the night before can be assumed to be broody. However, if nest access is restricted at night, then spraying at night will not work.

It is best to remove all marked females found on the nest as this system is based on nesting behaviour and as such gives an early indication of broodiness. Each day a different colour can be used, although the disadvantage of this is that the females can become multi-coloured, making correct identification of the colour for the day difficult. It is, therefore, important to use colours that will not persist too long, such as dilute food colourants or children's water-based paints.



Figure 2. Spray broody hens with a colour marker for easy identification

### System 3 – Net/Curtain System

This method utilises a net or curtain, which is lowered 2 to 3 metres in front of and parallel to the nest boxes. The curtain/net is left raised during the day allowing free access for the females to and from the nests. After the last collection of the day, all females are pushed off the nests.

About one hour later, all females in the area between the nests and the curtain/net are driven into the main pen and the curtain/net should be lowered. Thus potentially broody females are left sitting on the nests. Non-broody females that are still on the nests in the evening should be found in the area between the nests and the curtain/net in the morning. These females can be driven back into the main pen. Any birds remaining on the nests can be assumed to be broody and should be removed from the laying pens.

### Broody Treatment

Having identified broody females using either one of the three methods described above, the broody females must be moved from their favoured environment (i.e., a warm, dark, comfortable nest) to an uncomfortable area without a nest known as a broody pen.

The broody pen usually consists of a series of pens situated in the coolest part of the laying house and preferably with a higher light intensity than the normal laying pens. Up to 10% of the house will be needed for broody pens although this should be increased to 15% in hot climates. In large laying houses the total broody space can be divided into two sets of pens.

Each pen will ideally have a different floor or floor covering (e.g. sand, shavings, concrete, wooden slats, etc.) to the main laying pens and must be equipped with adequate feeding and drinking space, as deprivation of either will permanently stop broody females from laying.

A four-pen system is used as illustrated in Appendix 2. Each pen should have easy (gated) access and be connecting so that females can be moved from one pen to another on a daily basis. Allocate 40% of the area to the first pen, as this will receive the daily collection of suspect broodies that will be rechecked later and either moved to Pen 2 or returned to the laying pens.

Broody treatment is normally three to four days, after which females will normally start laying again, provided that they were identified as being broody early enough. The females in the broody pen should be inspected and handled daily and any non-broodies returned to the laying pens. Likewise, any birds seen squatting or laying an egg should also be returned.

### System 4 – Pen Switching

This is a method of last resort and should rarely need to be used for parent females supplied by Aviagen Turkeys as generations of selection have reduced the tendency for them to become broody. However, if other methods of control have not been effective or in hot climates where the build-up of broodiness can be quite rapid then pen switching can be the only practical alternative.

As the name implies the method involves switching all the birds from one pen into another pen, usually on the opposite side of the laying house. The small change in environment and the prospect of different nests will normally deter broodiness but there will also be a temporary loss of egg production at the time of switching.



**Pen switching should not be done before egg production has occurred, as this may result in a lower peak and poor subsequent production.**

If pen switching is to be used as the main method of broody control, then it should be done as soon as possible after peak production. The ideal time is when production has declined for two consecutive days after the peak. Pen switching is more effective in open sided naturally ventilated houses.

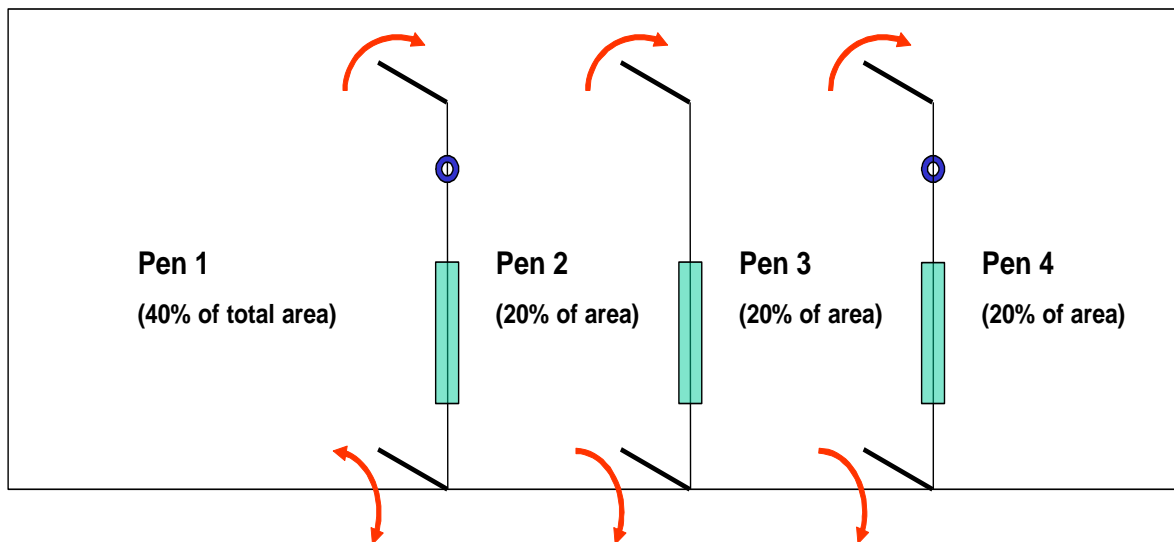
## Appendix 1

### Summary of Systems for Identification of Broody Females

	Method		Advantages	Disadvantages
1	Inspection at Nest	All females found on the nest either first thing in morning or last thing in the evening are checked & removed if broody. Likewise, a suspect broody can be checked during AI.	Very accurate methods when trained personnel are used and do not remove non-broody females from the laying pen. Training required.	Requires skill & training. Back of nest must be designed to allow inspection & removal of the bird. Labour intensive. Not really suitable for use with auto nests.
2	Spray Marking	Colour mark all birds on the nest after last collection of day; remove any marked birds still on nest the next morning. Must use different colours each day.	A relatively easy method to operate with minimal training required.	Females can soon become multi-coloured, so it is best to use colours that fade after a few days such as dilute food colorants or children's water-based paints.

3	Net /Curtain	A net or curtain is dropped down 2/3m in front of a row of nests after last collection; females on the nests in the morning are assumed to be broody.	Little training required.	Can deprive non-broody females of access to feed & water overnight.
4	Pen Switching	Switch all females in one pen with those from another.	Can be most effective in hot climates.	Generally used as a last resort as egg production will be reduced.

### Appendix 2 - Diagram of a Typical Broody Pen System



**Notes:**

- Ø Broody pens should occupy 10% of house floor area, but should be increased to 15% in hot climates.
- Ø Pens should be cold and airy and must have feeders and drinkers (extra may be required in Pen 1).
- Ø Floor Pens 1 & 4 can have straw or shavings, Pen 2 bare concrete and Pen 3 sand.



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