Egg Problems

*By Dr Rob Marshall B.V.Sc., M.A.C.V.Sc. (Avian Health), Sydney*

**Hen & Cock Infertility**

In many ways, the results of a breeding season will determine the overall enjoyment a fancier may get from this hobby. The aim for the fancier is to select and breed champion breeders who will produce show champions. Current and forthcoming articles will describe the common exhibition budgerigar breeding problems and ways to solve them.

Fortunately, the culture of keeping exhibition budgerigars has promoted accurate breeding records containing information concerning the eggs and young. This data is of great value and as it allows the fancier to improve breeding results by selecting fertile individuals for breeding. Eggs offer a wealth of information and enable the fancier to solve breeding problems and improve the overall health and breeding performance of the budgerigar stud.

**The common egg problems to be discussed are:**

**Part 1**

Failure to lay eggs (infertile hen)

Clear eggs (infertile cock)

**Part 2**

Addled eggs (early embryonic death)

Dead-in-shell eggs (late embryonic death)

Soft, thin-shelled malformed eggs (mineral deficiencies and uterus infections)

**Background Information**

The time frame in which breeding commences is critical to breeding success. Breeding problems, especially cock and hen infertility, should be expected when budgerigars commence breeding at a biologically inappropriate time of year. In the Northern Hemisphere, "pairing" during December (prior to the shortest day of the year) or in June (the month reserved for adult budgerigars' principle moulting period) is more likely to result in breeding problems, irrespective of whether or not artificial internal lighting systems are used. Artificial lighting systems may give good breeding results for other species but are less effective for budgerigars who rely more on their unique "survival" breeding clock system and less upon the "spring" breeding clock of the ancient bird. "Pairing" before June 23rd (shortest day of year) is never recommended in the Southern Hemisphere and for most parts of Australia, "Pairing" during the heat of summer (December and January) should also be avoided.

Budgerigars will naturally come into breeding condition in late summer/early autumn after their summer moult. This is the most successful time to start breeding. The next best alternative starting time in both natural and artificially lighted/heated breeding rooms occurs after the shortest day of the year and when the weather is warm. Many breeding problems are solved by breeding at the right time of the year with budgerigars that are in "breeding condition". The subject of "breeding condition" will be addressed in a later article.

**Hen Infertility (Failure to lay eggs)**

A failure of the hen to lay eggs signals that she is infertile or "barren". Hen infertility may be temporary and a failure to lay eggs should not immediately preclude her from future breeding. Exhibition hens follow the same breeding pattern as their wild sisters and need to reach "breeding condition" before they are capable of laying eggs. The failure of the hen to come into this breeding condition is the most common cause of hen infertility in the first round of breeding.

**To solve the cause of hen infertility the fancier should:**

1. Check when the hen was placed in the breeding cabinet. In most instances hen infertility results from an inappropriate starting time and the absence of a well defined "breeding condition" in the hen.

2. Closely examine the hen for:

A loss of breeding condition is signaled by a pale blue cere.  
Hens will fail to come into breeding condition if obese.  
"Going light". Irrespective of the cause of "going light", the hen will lack the strength and vigour to lay eggs.  
Physical problems such as "soft belly", internal growths, hernias, uterus infections and rectal prolapses are also identifiable by a careful physical examination.

3. Check the quality of the food and presence of latent disease. There may be an underlying disease (Chlamydiosis, Streptococcal or E.coli infection) or food contamination (stop providing all soaked, sprouted and wet food) when a high percentage (higher than 10%) of hens fail to lay eggs.

4. Check the breeding records for genetic weaknesses or evidence of inbreeding.

**Cock infertility (clear eggs)**

Eggs that fail to hatch are not always infertile and should be carefully examined to determine whether they are "clear", "addled" or "dead-in-shell". Many budgerigar fanciers use a candling light to determine the fertility of eggs. Candling is the act of shining a light (usually an optic fibre torch) through an egg to observe whether it is clear (infertile), or fertile. It is also used to identify eggshell abnormalities and dead-in-shell problems. Clear eggs indicate infertile eggs and therefore a breeding problem. This is often, but not always, associated with an infertile cock.

**In order to solve a clear egg problem the fancier must:**

1. Differentiate the infertile egg from an egg in which the germ or embryo has died.

Clear (infertile) eggs:  
Are as fresh and as clear at the end of incubation as on the day of laying,  
Carry no odour at any stage when broken open, and  
Show no blood vessel activity when candled.

Eggs in which the embryo has died:  
Are usually darker in colour with dark streaking present,  
Emit a foul odour when opened, and  
Reveal blood rings and other signs of a dead embryo.

2. Physically examine the cock bird for signs of failed breeding conditions such as obesity, weight loss or illness. These symptoms could be the cause of clear eggs.

The testicle enlarges ten-fold as the wild cock budgerigar is stimulated into breeding condition by the onset of suitable climatic conditions. The wild budgerigar has evolved over three million years to breed on the run, and in doing so, has survived the harsh conditions of and inland Australia. In the wild, breeding activity may terminate (the testicle decreases in size to a minute inactive organ) in a matter of a few days when conditions become unsuitable. This phenomenon may occur with the exhibition budgerigar. Cock birds may suddenly "fall out" of breeding condition when the environment becomes unfavourable for breeding. When breeding, the cock budgerigar needs three times more energy during the pairing process, and up to ten times more energy when feeding young. In the breeding cabinet the exhibition budgerigar requires even more energy to feed its particularly large young. When a depletion of energy occurs, the cock bird will quickly lose breeding condition and also the ability to fertilise eggs. Processes that inhibit the cock to access and utilise this energy, such as obesity, disease and poor nutrition, will result in clear eggs. Cocks who are obese become infertile and do not come into breeding condition. Those carrying disease will be more at risk to lose this breeding condition during an energy drain and any subsequent stress of pairing. Male fertility in the budgerigar stud can often be improved by the addition of quality protein, vitamin and energy feed supplements.

3. Other causes of clear eggs.

Inbreeding is also a common cause of infertility in cock birds. Male fertility is more hereditary than female fertility and sterility is passed down in the genes from father to son. An unrelated and proven fertile cock should be introduced when a high level of cock related infertility is experienced in an inbred line of birds. There is also a very close relationship between sterility and nutrition. Excessively long or thick feathers around the vent (buff feathered vents) are a common cause of male infertility, as they prevent the passage of sperm into the cloaca of the hen. These feathers should be clipped short with a sharp pair of scissors prior to pairing.

**Solutions for individual breeding cabinets with infertility**

The high incidence of sterile cocks and infertile hens in the very best quality show birds is often genetically linked. Purchase the lesser quality but more vital brother or sister of a lifeless champion because they will be of the same gene pool. It would be advisable to breed from these lesser birds because they will inevitably breed more offspring and the progeny will in turn be more fertile.  
Trim excessive feathers around the vent.  
Use nutritional and health supplements to bring the cocks and hens into peak breeding condition.

**Solutions for a high incidence of infertility in the stud**

Adjust the time breeding when commences. Start breeding after the shortest day of the year or at the beginning of autumn. Do not breed when it is very cold or hot.   
Identify health problems and "cleanse" the stud with a pre-breeding health programme. When a widespread infertility problem occurs, seek veterinary help to identify and eliminate diseases such as French Moult, Megabacteria, Chlamydiosis, E.coli and Strep. infections.  
Fortify the diet to lift the overall nutritional status of the flock.  
Change the breeding strategy. "Outcross" when weak lines and inbreeding result in cock or hen infertility.

**Acknowledgement**

This article by Dr. Rob Marshall is supplied by the World Budgerigar Organisation (www.worldbudgerigar.org), as part of their encouraged exchange of research information between member countries.

**Biographical Notes**

Dr. Rob Marshall graduated in 1975 in Sydney, Australia and followed with further studies in Germany, Holland and the U.S.A. He has presented numerous scientific papers in Australia and the U.S.A., is the author of many articles and books including the 170 page "Budgerigar Medicine" in 2001. This book, cram-packed with health information, treatment and medication, is a must for all budgerigar breeders. It is available at a cost US$34.00 (including postage) from the author at Carlingford Animal Hospital, 772 Pennant Hills Road, Carlingford, N.S.W. 2118, Australia. Tel: +61 2 9871 6036, Fax: +61 2 9873 21775. Email: robmarshall@birdhealth.com.au