

# The Amazing Egg

by Mike Corbeil

Now that breeding season is here, a little information about the amazing egg is in order I believe.

Many people take for granted the sheer complexity, yet simple anatomy of the egg. First issue involved is the necessity calcium plays in the hens need to produce an egg. She will draw from her stores to produce each and every one. If she doesn't have an ample supply, problems will occur. She will not have enough for her own physical needs. Secondly, she will not have enough for the egg formation itself, and lastly there will not be enough for the growing chicks needs for it.

Many studies show the calcium levels in a hen will on average, drop to around 60% during laying. Terms such as "clear eggs" and "egg bound" are the two main concerns due to low calcium levels. Obviously the formation of the egg is directly affected by the calcium level of the hen, as well as her physical needs to avoid egg binding.

There is much written on egg binding and clear eggs, so I will not go in-depth here except to say, please look these up or ask and I will be happy to elaborate in a future newsletter.

There is no higher emphasis that can be made, then the need to address calcium with Vitamin D before, during and after breeding. As stated, calcium is a big concern and addressing it will stem off many problems and allow for success. With that said other problems can occur as the egg slowly makes its way through the albumin production stage. This can be, pea sized eggs, double yokes, no yoke, 1/2 sized eggs etc. These things as well as more can occur usually from genetic faults in the hen, age, or over taxing her, defined as wearing her out. Please do not ask too much of her. In my own opinion, two clutches is it, but three can be ok if you take care of her.

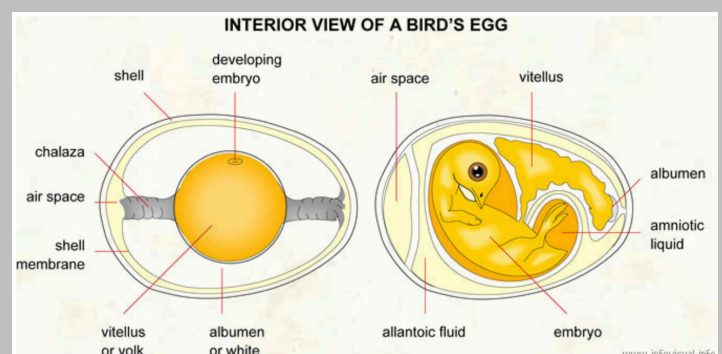
Now about the egg. The illustration right, shows the inner workings of the egg.

The things we need to watch for is basically the handling. If you choose to remove, candle, relocate or handle them in any way, sanitation is must.

The egg shell is porous and air as well as toxins or impurities pass through it. Think the egg shell as hundreds of little holes you can't see, like follicles on your arm or head. The hen will turn the eggs every day to avoid problems as well as sitting and incubating. On the large end, as shown above, you will see the air sac or air space. This space will increase at points and decrease at other times. If your hands are dirty or the nest is fouled, impurities or other dangerous things can enter into the egg. This of course would cause problems in the growth of the chick, or cause death altogether for the growing chick.

Many aspects one can find distressing when the eggs do not hatch. The hen could not be in full breeding condition, poor incubation temperature, not sitting tight on the nest, an infection or too much or too little humidity.

The incubation temperature can be increased by feeding vitamin B throughout the breeding season. I like to use a liquid B complex, which is added to the drinking water. It can be found at most health food stores and generally is red in color. One full dropper to a quart of water works fine.



If a hen is not in full breeding condition or has failed to come into full condition her abdomen will show you everything you need to know. Hold her on her back and her breeding patch should be clear of feathers and prominent. It also should be warm to the touch. This is of course a gross over generalization but is very specific to those who know. Look this up to find out more, or once again ask and I will add more in an upcoming issue. Now back to the egg.

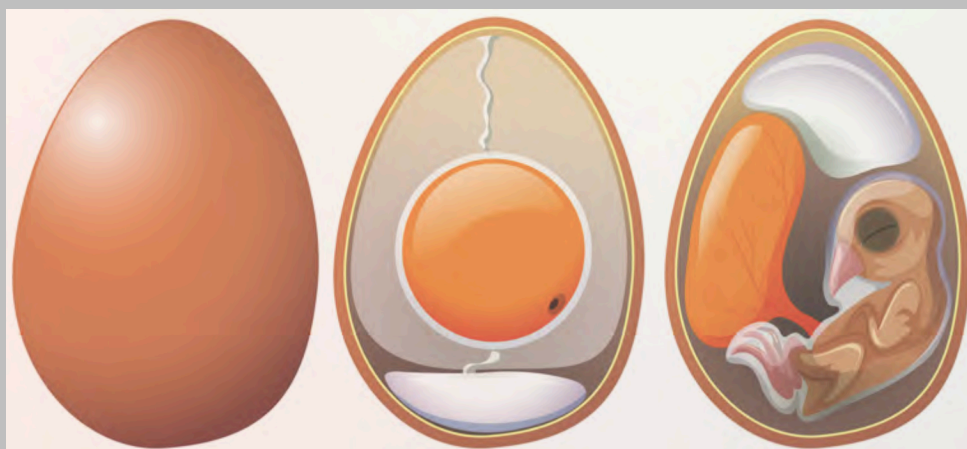
The shell must perform a few duties both vital and important. It must allow oxygen, carbon dioxide and water to exchange freely but also prevent anything infectious from penetrating. Too thick or too thin and exchange in respect to this process can be problematic. Too thin and they lose water and allow infectious agents in. Too thick and they inhibit any exchange. Due to the exchange of gases, air, water and the like is why I stated the need to wash your hands as well as pay attention to any fouled eggs, that they do not waste in the nest.

Most hens do well to wait and eliminate themselves in the morning when they leave the nest. Some may soil themselves and bring some back which on occasion can cause problems but rarely, so don't fret. Also, please do not wash any eggs. I am just trying to illustrate some problems and/or causes of dead in shell or other aspects to make note of.

The thickness or thinness of an egg can also affect the chick abnormally in two more ways.

Other aspects such as humidity plays an important role. Too high and the eggs do not lose enough moisture before hatching which results in the chicks navels not sealing and many chicks pip but then drown from moisture collection in their nostrils. When humidity is too low the thin membrane of then egg will toughen and the chicks will not make it out of the shell. In these cases the chick will dehydrate and appear shriveled up if you break open the egg to view why. This aspect one may watch by keeping an eye on the relative humidity in the breeding room. In general terms, too low of a humidity level is worse than too much. When it is too low it interferes with the hatching of the chick. This causes the chick to break the shell but will not allow for the correct alignment for its exit or full hatch. The hen will begin to bath more and breeders should always let hens bath from day 11 on. Some people go as far as to even lightly mist above the hen which in turn adds humidity to the eggs around day 12. Do not add a lot, just a fine mist which can fall gently over and down onto the hen.

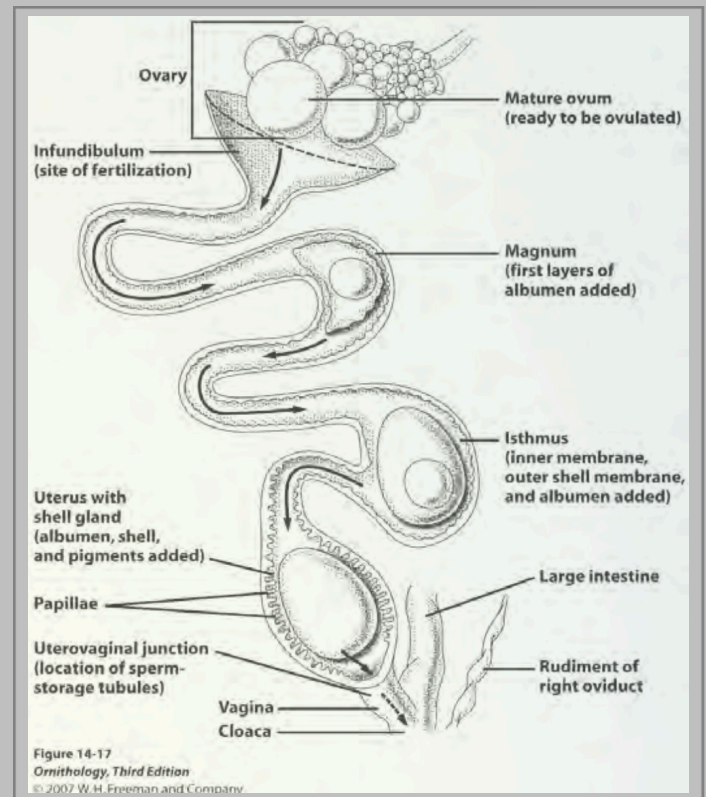
At this point around day 12 it is almost time. Some hatch on day 13 but most on day 14. Depending on the incubation temperature and hens habits. A little side note which many people don't take into account. The struggle a chick goes through to exit the egg is monumental. It is a fight, which we have hopefully given through our care of the hen, all the chick needs to succeed. All of this process is to stimulate all functions of the chick, the respiratory, internal organs and circulatory system. Once the chick exerts itself and their metabolism increase, the tendons start to set. If this happens in the shell, crocked toes, and even bow legs can and usually do result. Lastly there are times when strange events occur.



A virus that causes infectious bronchitis can cause misshapen eggs, but will appear as a constant not a one time event.

The oviduct (see image on the right) will produce a shell around the yolk as it passes through. However, if something else passes through such as if the hen lost a bit of tissue, for example, albumen, membranes, shell can be produced around this tissue. The most common time to see this is when a hen is either just starting to lay or is going out of production. These eggs can be pee sized or abnormal in size or shape. Some hens, due to genetic internal flaw will only produce unfertilized or non viable eggs.

I know I have made many huge generalities in this article which hopefully you will explore in more depth on your own. ~ Mike



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