

Managed Incubation: Gathering Biological Data via Incubation Technologies

The primary reasons for collecting egg measurement data are to gain a picture of the biological health of the individual, and to increase hatching success, allowing for optimal management of environmental conditions for the developing chick, and early intervention if necessary (similar to a first term ultra sound in a mammal).

Close observations and measurements of length, width and weight also give a snapshot of the female's health, possible dietary influences, and pair compatibility.

The first measurements are best obtained as the eggs are laid, as early as possible, before the female sits and starts the incubation process (even if the last of the eggs in the clutch are unable to be measured through fear of disturbance). This can vary on the female and some may start to brood the eggs before the entire clutch is completely laid. Measurements taken towards the end of incubation or near the external pipping stage leave very limited if any room for management process to aid successful hatch, and one can find an egg externally pipping before a weight can be confirmed. External pipping drastically elevates loss of weight and hence a change in density.

The length and breadth does not change over time, the weight does. The aim is to monitor the change in the density of the egg.

The first measurement of length, width and weight gives an initial density status of the egg, and allows for observations such as cracks, air cell location and external coating such as blood, pitting, powdery chalk and craters. When charted along other egg data, density takes into account the differing sizes of eggs and hence is more comparable than weight.

The information enables temperature, which affects humidity, to be adjusted to best suit the eggs requirements within the managed environment. For example, if the density of the eggs in general was high (more dense, above 1.075cm^3), then overall hatching success could easily be influenced by decreasing the relative humidity, which is directly related to temperature.

The second measurement of weight will tell you how it is responding to environmental influences, again adding measurable data to the well being of the

female but more importantly enabling direct action to take place in aiding the hatchability of chicks.

This technique has yielded extraordinary success in the captive management of many species of birds around the globe and adds a skill set which allows far greater success with little additional work load for these endangered species. The process is easily streamlined with practice and time...

In summary:

- Weigh the egg as soon as possible after lay
- Ideally, weigh the egg within a week of the first weight, so that you can act upon the information gathered.
- Measure the length and width of the egg. As the dimensions of the egg will not change until the piping stage, this can be done at the second weighing, however the first weighing is best.

Techniques to aid the data collection:

- Substitution of artificial eggs when you remove a egg for measurement. Even if for only a minute.
- Condition the birds to come out of the nest box and to the feed site (or similar) so as to minimise the birds knowledge of your entry into their nest.
- Monitor the birds behaviour remotely and be ready to act at the first opportunity.
- Distract birds at a distance from the flight with an non-routine behaviour.
- Change your routine when servicing the breeding flights.

Detailed information regarding incubation can be found by [Clicking on the link to download the pdf.](#)

[For more information about incubation and husbandry products, please click on this link.](#)