SELENIUM: A FORGOTTON TRACE ELEMENT.

Often people come or mail to me with the question about which vitamin supplement is the best. Of course, the answer is hard to tell, because, even when putting all data from whatever supplement in computer excel files, and comparing these with the nutritional demands, a lot of them fail in a few aspects, selenium being number one.

First of all, what are these demands? Data are coming from NRC, National Research Council, but their last meeting was in 1994, no update since then! Also, these data are poultry data, calculating how low one can go, after all they do cost money, to a level keeping production right, but these data are minimal requirements. All these data represent requirement to prevent sub-clinically deficiency, but are far away from optimal requirements.

Another factor to consider is these data are calculated on a total food base. Suppose a bird eats 5 grams of your seed mix, and you give 2.5 grams of soft food with an ideal vitamin score, one still only covers 33% of the bird vitamin needs, as the seed mix does not supply enough vitamins. This is the reason why vets always have liked to go on to a pellet based food, as they do for parrots, in order to prevent deficiency.

One has two options, calculate it all in files, a hard job, or as many do, use different brands of vitamins, and rotate their use, which is a very clever way of dealing with things.

Selenium has a special place in this paper, as it is a trace element only needed in very small amounts in bird food, but looked over by most vitamin and mineral brand companies.

Selenium takes part in the antioxidant system in the bird's body, protecting it from free radicals. I will not go into detail in this, as this is a complicated scientific matter. It works together with iron, copper and zinc for optimal enzyme functions in this antioxidant system. Living organisms have developed antioxidant systems in their bodies when oxygen levels on the planet were rising millennia of years ago. It has been shown wild bird eggs do contain 10 to 12 fold levels of selenium as to chicken eggs from the supermarket. Lots of studies have been done as to this, and we know, selenium is needed for many lots of reasons.

- It does protect the lipid layer of sperm cells for oxidation. Good sperm needs selenium.
- It is transferred into the egg where it protects the fatty acids for oxidation. As I wrote before in the second week of incubation the embryo has to make its own sugar out of protein and fats in the egg (gluconeogenesis), in this process selenium protects the fats from oxidation, by which they cannot be used by the growing chick inside the egg. Also, as Nature has created eggs in which oxygen levels are low, free radicals being produced continuously.
- Selenium is also needed for optimal thyroid function, a problem often met in Border canaries.
- It protects newborn chicks for infection. Studies have been done showing increasing selenium levels in soft food reduce E. Coli related mortality up to 70% at different selenium levels. The newborn chick does not absorb selenium from the soft food provided by the parents but relies on its own reserve from the egg, so the diet of the hen must be provided with enough selenium to protect the chick the first two weeks of life. Maybe

another causal factor in the problem of young chicks dying without any reason.

- It is important at hatching because lipid per oxidation is very high and the chick, when piping the egg, oxygen levels in tissues increase. Selenium also has a sparing effect on vitamin E, as an antioxidant, meaning vitamin E is being recycled by selenium.

Ok, I guess you believe by now the importance of selenium, but how can we make some corrections in our diet plans for our birds.

- We can give our birds foods containing higher levels of selenium. Brazil nuts are the world's best selenium source, but there was a warning by the British Food Standards Agency because of the possible toxic level of aflatoxins, which can be lethal for our birds. Another good source is sunflower seeds, which we can provide is small quantities to our birds, but be careful not to exaggerate because these are high fat seeds.
- Eggs from birds in nature have much higher selenium levels as eggs from commercial chickens, with the exception of free range eggs, the so called Greek eggs, or the modern designer eggs in which chickens are fed omega 3 fats and selenium. These eggs are the same as eggs found in Nature, and as many of us do prepare our soft food with eggs, one can choose to use these eggs, lots of brands, Columbus being one of them.
- As to supplements to be added to our soft food, starting as we start conditioning our birds from January on, as well for cocks and for hens, for breeding and even for molting birds we can add 1% of bakery yeast, rich in selenium, and Optibreed, from the Versele Laga company, one of the sole brands containing sufficient amounts of selenium to protect our birds. An added advantage of the Optibreed is it is high in calcium, so there is no need to add calcium to the drinking water.

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