Shine a light on breeders

By Ron Meijerhof and Ampai Nanguay

As we all know, to activate the reproductive system of a breeder and get it into production, we have to give it the impression that spring has arrived. We increase the light, and when the bird is sufficiently developed it will respond with the development of its reproductive system and after 3 weeks the first eggs will start to be produced.

Birds do not count the hours of light during the day, but they respond to the fraction of increase in day length. This means that an hour added to a day length of 8 hours has more effect than an hour added to a day length of 12 hours, because the fraction of increase is larger. This is the reason that we do not want to have the day length in rearing longer than necessary, because the more day length we give in rearing the less effective our light stimulation will be when we increase the day length to get the birds in production.

But it is not only the day length that stimulate birds to get in production, light intensity plays an important role as well. As in day length, we must have a sufficient increase in light intensity to stimulate the hormonal system of the birds and with it the reproductive system. Failing to give the birds enough increase in light intensity will delay production as much as failing to increase day length, and many people have the experience that perhaps light intensity might be in itself as important or even more important than day length.

The rule of thumb is that the light intensity should increase with the increase in day length, and that the increase should be approximately 4 to 7 times in light intensity. So when we have a light intensity in rearing of 5 lux, we should have a light stimulation in intensity towards at least 20 lux. This makes it very important to have light tight rearing houses. Not only because otherwise the day length is not increasing enough, but also the light intensity in rearing will be too high, which will not leave enough opportunity to increase sufficiently. If the light intensity in rearing is too high, we have to increase to a very high level of light intensity in production, and with it the risk of pecking, cannibalism and male aggressiveness is increasing.

In situations with dark out rearing houses and day light production houses the increase in intensity will always be sufficient, but with dark out production houses it can be different. Farmers often tend to keep the light intensity at the start of the stimulation rather low, to avoid that males are getting too aggressive and to prevent cannibalism. This is by itself logical, but the effect is often opposite. As males react stronger and faster on light stimulation than females, a small increase will have more effect on the males than on the females. This can increase the problem as the females will develop slower than the males, not only resulting in delayed production but also in more male aggressiveness.

Based on the necessity to increase the light intensity, in rearing it is especially important to not exceed a certain maximum light intensity, where in production we are more concerned about the minimum light intensity that we are dealing with. This means that in rearing we have to focus on the light intensity at the brightest points in the house, usually under the lamps. At this point, the light intensity should not exceed the maximum that we set, for instance 5 lux. If this means that the darkest spots in the house are getting too dark, we have to improve the light distribution, as increasing the light in the darkest place will bring our bright spots above the maximum that we want. In production the situation is opposite. There we want to measure the light intensity at the darkest spot, and we do not want to get under a certain minimum, for instance 20 lux. Also here, if that

means that the brightest point is getting too high in intensity, we have to improve the distribution, as decreasing the light intensity overall might create problems with the speed of development.

Light is a crucial factor in stimulating the birds in the right way into production. Not only day length should be considered as an important factor, but also light intensity. Failing to meet the birds requirements will have an effect on their development that cannot be ignored.