

# HatchBrood: A Tool to Reduce Antibiotic Usage in Poultry

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**Antibiotic usage is high in the poultry industry in the Netherlands and needs to be reduced by 50% in 2013 to prevent the growing resistance to antibiotics of disease-causing bacteria in humans. To reduce antibiotic usage, optimal management of the environment of chickens is important, especially directly after hatch.**

Although the chicken is anatomically complete at hatch, maturation of different regulatory systems occurs during the first four days of the chicken's life (the early brooding period). During this period, chickens are unable to regulate their own body temperature. Their body temperature depends on the environment but is optimal between 40.0-40.6°C and this is often difficult to achieve at a broiler farm. Low body temperatures caused by a cold floor are often found in practice and negatively affect the development of young chickens. A suboptimal brooding environment results in delayed chicken development such as the intestinal and immune function, a lower uniformity in body weight, and a higher

mortality rate. Furthermore, antibiotic usage can be increased as well.

HatchBrood is a system that is designed to control the environment of the first days of a chicken's life. After hatching, day-old chickens are placed in the HatchBrood unit. Inside this unit, factors such as air temperature, air velocity, relative humidity, and CO<sub>2</sub> are constantly monitored and adjusted to the requirements of the chickens to ensure an optimum environment and body temperature. Water and feed is provided to all chickens and they have easy access to fresh air. After 4 days, the chickens are transported from the hatchery to the farm.

HatchBrood optimises the development of the thermoregulatory, intestinal and immune system of the birds and can be a tool to reduce antibiotic usage. Different aspects from the HatchBrood system achieve this:

1. Chickens are uniformly brooded at the right body temperature (40.0-40.6°C) and with feed and water; there is no cold floor or other stressors to impair the development and maturation of the thermal, digestive, and immune system of the chicken.
2. The environment can be cleaned and disinfected to eliminate disease challenges; the immune system develops before the chickens are exposed to the field disease challenges.

In a recent interview in Nieuwe Oogst (nr 3; 2011), a Dutch poultry farmer, Mr. Kees Nuijten, shared his experience with HatchBrood chickens. He has been able to grow four batches of HatchBrood chickens completely free of antibiotics and he was able to maintain the total mortality below 3% throughout the four cycles. Optimal brooding in HatchBrood may enable chickens to respond better to field disease challenges. With enhanced natural disease resistance and optimal development of the bird, antibiotic usage can be reduced in the future.