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A Greener World Briefing Paper #1

Comments on Holt “white paper” from *Feedstuffs* (December 5, 2011)

Certified Animal Welfare Approved by A Greener World (AGW) has the most rigorous standards for farm animal welfare currently in use by any organization in North America. Its standards have been developed in collaboration with scientists, veterinarians, researchers and farmers across the globe to maximize practicable, high-welfare farm management.

In a “white paper” on outdoor access and hen welfare, published in *Feedstuffs* on December 5, 2011, Dr. Peter Holt claims that the evidence he provides calls into serious question the advisability of a free range requirement for organic egg laying hens. Dr. Holt states that the welfare benefits of free range poultry systems are primarily based on welfare perception, rather than on actual scientific welfare facts. By extension, he calls into question the advisability of all free range egg production. Animal Welfare Approved does not agree with the conclusion of his paper and this briefing paper seeks to explain why.

Definitions

There are a number of problems with the manner in which Dr. Holt has approached this important issue. The first relates to definitions he chooses to use.

The prescriptions of conventional cage production (the benchmark against which Dr. Holt makes several comparisons with free range) are quite straightforward. Aside from minor variations in space per bird or number of birds per cage, there are unlikely to be significant differences between different systems. Free range, however, is another matter entirely. Free range systems can vary from what are effectively semi-intensive indoor cage free systems consisting of thousands of birds with a single exit or entryway to the outdoor area, to small flocks in mobile houses on pasture – and everything in between. Even in Europe, where “free range” is legally defined, the practical application of this system of management is highly varied. Combine the fact that organic production may also be included in some papers that consider behavior in free range systems – and that organic production has a separate definition and further differences in practical application – and we find that comparing the system of “free range” with other systems becomes a highly complex matter. What is needed is a clear definition of the type of free range production that is practiced and then a comparison of that defined production with other egg systems. Unfortunately, Dr. Holt fails to provide this and his hypothesis is based on numerous research papers which utilize a range of diverse and undefined production systems.

It would take too long to go through every scientific paper used by Dr. Holt to justify his claim that free range systems result in poorer bird welfare. Nevertheless, we have listed some of the key problems with his conclusions.

Salmonella

Despite Dr. Holt's assertion that salmonella more prevalent in free range flocks, numerous studies have shown that eggs from caged systems are more likely to contain salmonella than eggs from free range systems. For example, in a paper published in the *American Journal of Epidemiology* (see <http://aje.oxfordjournals.org/content/156/7/654.full.pdf+html>), Molbak and Nelman (2002) found that people who ate raw or undercooked eggs from caged hens were twice as likely to contract salmonella food poisoning than those who did not eat eggs from caged hens. A study by the European Food Safety Authority (see <http://www.efsa.europa.eu/en/efsajournal/pub/97r.htm>) of over 5,000 commercial large-scale egg laying units in Europe in 2004–2005 clearly identified a greater risk of salmonella in caged hens when compared with barn, free range and organic hens. Similarly, a UK study in 2007 (see <http://veterinaryrecord.bmj.com/content/161/14/471.abstract>) found that 23.4% of farms with caged hens tested positive for salmonella, compared to just 6.5% of free range flocks. This research also revealed that the highest prevalence of salmonella occurred in the biggest 'factory-style' farms. Methner *et al* (2006) also identified that the share of salmonella-positive flocks was higher in conventional cage systems (46.3%) than in alternative housing systems, such as barn, free range and organic (see <http://www.ncbi.nlm.nih.gov/pubmed/17172134>).

Mortality

As Dr. Holt states, the risk of predation is greater in free range flocks than caged flocks. However, good management and infrastructure such as anti-predator perimeter fencing can mitigate this risk. Many high mortality levels quoted by reports and research can often be attributed to outdoor systems where predator threats are poorly managed. Other published, peer reviewed research shows little difference between mortality of the different systems. For example, the Humane Society of the United States (see http://www.humanesociety.org/assets/pdfs/farm/mortality_cage_free.pdf) provide a useful (referenced) summary that establishes that genotype and management play a large part in mortality levels – not just system of production. Similarly, the EU LayWel project found that, in the best managed flocks, mortality could be 3% or less in conventional cages and 4% or less in outdoor systems (see LayWel deliverables at <http://www.laywel.eu/web/pdf/deliverable%2071%20welfare%20assessment-2.pdf>).

Smothering

Dr. Holt states that Bright and Johnson (2011) reported that smothering was responsible for 40% of the mortalities in four of 10 free range laying flocks. However, this is 40% of the total mortality – one of those flocks had a total mortality of 6.6%, and mortality due to smothering of 2.95%. While it is still concerning that over 40% of the total mortality was due to smothering, the overall mortality of this flock is comparable with the 7% total mortality for confined flocks, noted as being a good result compared with free range earlier in the Dr. Holt's paper.

In addition, the Bright and Johnson (2011) report did not compare different systems (barn, free range, organic) and also showed an enormous range in the problems of smothering; there were three flocks where total mortality was less than 0.5% from smothering. Again, this reaffirms that smothering is an issue of management, not necessarily of the free range system (see also <http://www.thepoultrysite.com/articles/2194/investigating-losses-from-smothering-in-commercial-poultry-flocks>).

Erysipelas

Dr. Holt quotes Stokholm *et al.*, 2010; a Danish report, saying that erysipelas was detected only in free range flocks, plus Fossum *et al* (2009), and Eriksson *et al* (2010) to support the contention that erysipelas is a growing problem for outdoor birds. The problems with Fossum *et al* are dealt with below; however, Stokholm *et al* only looked at 15 organic flocks compared with four litter-based indoor flocks. Two of the organic flocks had erysipelas. They also noted that the indoor litter based flocks had mortality problems with *E. coli* infection, constipation, and cannibalism – hardly a major indictment of the organic/free range system.

Eriksson *et al* state that, between 1998 and 2010, erysipelas was diagnosed in 50 separate flocks. Twenty-five of these flocks were housed on 15 farms with indoor litter-based systems (total number = 186 farms in 2010) and the other 25 flocks were housed on 18 free range farms (total number = 69 farms in 2010). While the presence of any health issue is clearly a problem, this particular disease does not seem to be as much of an issue as Dr. Holt appears to suggest.

Vaccination and good land management and rotation can help with the control of erysipelas in poultry.

Specific problems with Fossum *et al* (2009)

Fossum *et al* (2009) is quoted extensively by Dr. Holt to justify increased mortality, increased feather pecking and increased disease risk in free range flocks. The data used in Fossum *et al* was collated during 2001 and 2004. Only 914 hens in total were given a post mortem during that period

It is important to note, however, that flocks were only accepted into the study if they were already experiencing increased mortality. Thus one can argue that if you start by only looking at flocks that have increased mortality then the end result will inevitably be increased mortality. It is impossible to know how many free range/organic or litter based flocks were not included in this study because their mortality wasn't increasing.

Fossum *et al* also state that, as the data is relatively old, some of the results may be skewed as this was a time in Sweden when farmers with no experience of non-cage systems started setting them up and managing them. Notably, the paper also suggests that the situation has improved markedly since 2004.

Nevertheless, the inexperience of the farmers will inevitably have had an impact on mortality. For while free range and organic systems have the potential to deliver far greater levels of bird welfare, the

system is not as controlled or automated as battery cages (which will have controlled lighting, temperature and so on). Thus a higher degree of stockmanship and management is required in free range systems than in indoor systems.

Fossum *et al* also indicate that cannibalism is a problem and link it to flock size. We agree that flock size can have a major impact on cannibalism. Cannibalism is also related to management and, in particular, nutrition, as opposed to simply the type of system.

The *E. coli* issue is mainly related to management –for example, keeping the litter dry and friable. Knowing that many of the farmers in this study were new to litter based systems, and therefore may not have had acquired the necessary knowledge to manage the birds and the systems properly, would explain the issue of *E. coli* in the free range systems.

Standards

Dr. Holt's paper mentions "outdoor access, also known as free range or pasturing". And it is clear from the introduction to Dr. Holt's paper that the purpose of his paper is to challenge the National Organic Standards Board's proposal that organic hens must have soil-based outdoor access. However, it is very important to note that the terms "free range," "outdoor access," "organic," "access to soil" and "pasturing" can all be different methods of production.

For example, there is a significant difference between allowing chickens access to a static outdoor pen which is not rotated and thus can encourage the build up of disease, and allowing chickens access to properly rotated pasture. Even if vegetated and rotated pasture is mandated, the stocking densities (both in the house and out on pasture), overall flock size, breed type, and even the system used when rearing the birds that will become egg laying hens, will all have an effect on how birds use their outdoor area, as well as their overall welfare.

In Europe, there are clear legal definitions of both free range and organic egg production. In the US, however, there are no legal definitions and the use of terms such as "free range" or "pastured" is unregulated and thus extremely variable. Unlike Europe, there are no restrictions on flock size (3,000 birds maximum for organic production), no limits on outdoor stocking density, and no requirement for the outdoor run to be mainly vegetated and not used for any other purposes except for orchards, woodlands or livestock grazing.

Certified Animal Welfare Approved by AGW (AWA) does set standards for free range production, which ensures that the needs of the birds must be met. Space allowances and stocking densities are set, health plans and health management are mandated, protection from aerial and other predators is required and the outdoor area must be vegetated. While there is no limit on flock sizes under AWA standards, there is a requirement to monitor negative behaviors such as feather pecking that are known to be linked to this factor – with a requirement to reduce flock sizes and change management to address the problem if it

should arise. AWA standards establish a defined system of free range production that really does work and is widely recognized as providing high welfare to the birds.

Final thoughts

When examining systems of production for any species we must examine the welfare potential of the systems, as well as the welfare realized on individual farms. Scientists across the world now recognize that the conventional cage system has serious shortcomings when it comes to bird welfare. A far reaching report by the European Food Safety Authority (EFSA) laid the foundations for the legal prohibition of this method of production in Europe as from 1 January 2012 (see the EFSA link in “Other useful information” below).

Free range, as can be seen from the information above, is a more complicated matter. Could a poorly run semi-intensive cage-free system with a flock size of thousands of birds and minimal access to a non-rotated, barren, uninviting outdoor area used by a limited proportion of the flock offers worse welfare than a brand new, clean and well-managed enriched cage system? Possibly. Yet could you ever claim that a well-managed free range system with flocks of birds in mobile housing on a rotated and vegetated pasture area, effective exclusion of predators, good nutrition, good preventative health care and a suitable breed could offer *worse* welfare than any cage system – however well run? We contend that a well-run free range system will always offer better welfare than any cage system.

It is also worth remembering that there are not diseases of free range chickens and diseases of caged chickens; there are simply diseases that affect chickens as a species. The risk of a particular disease may increase or decrease depending on the system of management, but this is a reason to ensure good management, good veterinary advice and good health planning, rather than a reason to dismiss a particular system outright.

If we agree that the chicken is a sentient animal and capable of suffering (a point recognized in European legislation as far back as the Treaty of Amsterdam in 1997 and further strengthened by the Treaty of Lisbon in 2009) then we must look at what can be done to provide a life that minimizes suffering. AWA makes no apology for repeated references to Europe for their legislation on animal welfare, both for the EU and individual countries, is arguably the most advanced in the world – and is based on clear scientific arguments, as are our standards.

Looking at the available science there is no question that the potential for better welfare in free range systems is high, while the potential for better welfare in caged systems is low. To realize the high welfare potential of free range production may well require better management, more labor and a greater level of thought and care than the almost automated management of caged hens. However, the fact that it may be more difficult – and that free range eggs may cost a little more – is not a reason to “question the advisability” of the system. On the contrary, it is a reason to ensure that wherever free range production is promoted it is clearly defined, and that the tools and training to manage the system correctly are available to the farmers concerned.

Further information:

http://orgprints.org/9331/1/Welfare%2C_productivity_and_qualitative_traits_of_egg.pdf

<http://www.laywel.eu/>

<http://www.efsa.europa.eu/en/efsajournal/doc/197.pdf>

See <http://feedstuffsfoodlink.com/Media/MediaManager/Holt%20outdoor%20hen%20welfare.pdf> for a copy of Dr. Holt's report with full references.

Comments on Holt "white paper" from Feedstuffs (December 5, 2011) is one of A Greener World's Briefing Paper range, designed to provide analysis and comment on current issues. For more information visit agreenerworld.org.