

# Poultry Digital

## Sustainability

What does it really mean for poultry producers?

Inside the Sustainability issue | Reducing water and energy use • Helping businesses meet their environmental targets • South Africa's hardy custom-bred chicken • Your questions on backyard sustainability • Why zero waste to landfill isn't an impossible goal



## Take the winning strategy

We fight AVIAN INFLUENZA all around the world

[www.avian.merial.com](http://www.avian.merial.com)

LET'S  
SPEAK  
AVIAN

PEOPLE PRODUCTS SERVICES



 **Boehringer  
Ingelheim**

## “Sustainability is a term used with increasing frequency at all levels of food production and consumption”

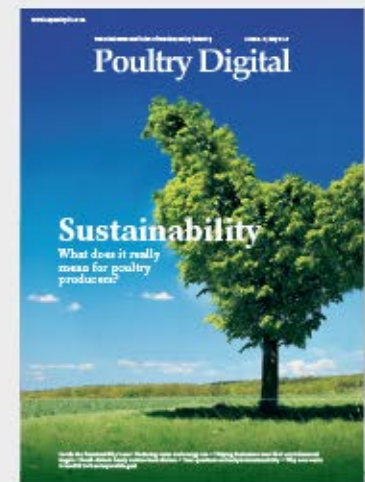
**S**ustainability is a term used with increasing frequency at all levels of food production and consumption. But what does it actually mean in the poultry industry? In this issue of Poultry Digital we put just that question to Karen Christensen, an Associate Professor at the Center of Excellence for Poultry Science, and to FAI, a consultancy who are dedicated to providing sustainable sourcing solutions for the food supply chain and whose clients include M&S, McDonalds and Ikea. You can read their thoughts on pages 8 and 26.



Elsewhere in the issue we investigate real stories of producers who are tackling sustainability challenges in different contexts. On page 20 we meet a South African farmer and entrepreneur who has created an all-in-one micro-coop that generates its own electricity, providing a source of food and income to potentially thousands of African families. Meanwhile in the USA, we find out how one co-operative of turkey farmers turned their meat processing business into a zero-waste wonder (page 18). Look further and you'll find practical tips on how to save energy and water as well as our regular features covering the latest poultry headlines from around the world, and featuring a fascinating breed – this time, the lovely leggy modern game fowl.

We'll be back in July with an issue looking at how to protect your poultry – be it from weather, predators or pathogens.

Ellen Hardy | Managing Editor



Managing Editor  
Ellen Hardy

Contributors  
Chris McCullough  
Glennels Kriel  
Andrew Amelinckx  
Ellen Hardy  
Alice Mitchell  
Mike Colley

Design  
Nick Morton


Sales  
Nic Catterall


### Contact

For editorial enquires please contact  
[newsdesk@5mpublishing.com](mailto:newsdesk@5mpublishing.com)

For sales enquires please contact  
[nic.catterall@5mpublishing.com](mailto:nic.catterall@5mpublishing.com)

5m Publishing  
Unit 10  
Southill Business Park  
Cornury Park  
Charlbury, Oxford  
OX7 3EW

 /thepoultrysite

 @thepoultrysite

[www.thepoultrysite.com](http://www.thepoultrysite.com)

 The Poultry Site

COVER FEATURE

8

## How sustainable is American poultry farming?

As global demand for protein puts increasing pressure on resources worldwide, broilers are emerging as a sector where sustainable mass-production is possible.

FEATURES

### 12 Water management 101

With water in increasingly short supply in many parts of the world, the pressure is on to make high-consumption industries such as poultry farming as efficient as possible.

### 16 Energy saving tips

Energy represents one of the biggest costs in poultry production. Here are nine ways in which costs can be reduced in intensive production systems.

### 18 Zero waste to landfill?

Sending zero waste to landfill is an admirable goal to aspire to but impossible to achieve in reality, right? Wrong.

### 20 Focus on South Africa

One farmer is fighting harsh conditions with all-in-one micro-coops and a seriously tough breed of chicken.

REGULARS

### 5 Latest headlines

Look back at key moments in the industry from the past two month with the top headlines from The Poultry Site.

### 25 Featured breed

They're shaped like a clothes iron and they make great pets: meet the lovely, leggy Modern Game Fowl.

### 26 Farming in focus

Head Scientist at FAI Farms, Ashleigh Bright explains how businesses can assess their environmental impact.

### 28 Your questions

Mike Colley answers reader questions on environmentally friendly bedding, vaccination and the carbon footprint of a backyard flock.

### 29 Events

Plan your travel schedule with our pick of the best industry events to come in 2017.



## New wheat could reduce feed supplements in poultry feed

UK & DENMARK 5 APRIL 2017

Researchers say they have come up with a special wheat that could reduce the need for feed supplements while at the same time providing key nutrients that promote healthy bones in poultry.



**SWEET, IT'S WHEAT!** | Wheat can be bred naturally to produce high levels of phytase, an enzyme needed to release phosphorous, which the bird requires to grow a healthy skeleton

A joint effort between researchers at Nottingham Trent University in England and Aarhus University in Denmark, the research focus was on developing a bird with a strong bone structure. It was the scientists at the Department of Molec-

ular Biology and Genetics at Aarhus University who discovered wheat can be bred naturally to produce high levels of phytase, an enzyme needed to release phosphorous, which the bird requires to grow a healthy skeleton. While the Danes developed the wheat,

the group in Nottingham tested it out at the university's own poultry research unit.

Over the past 50 years the poultry industry has been successful in achieving excellent growth rates for birds but now the focus is on ensuring that a healthy, well-developed skeletal frame is produced. Nutritionists have tackled this issue through supplements, to ensure the correct mineral balance in the diet. A key component is phosphorous, a mineral found in plant tissues, grains and oil seeds and which is vital for skeletal growth and maintenance.

However, not only is phosphorous supplementation very expensive, but the phosphorous from plant sources present in poultry and pig feed has a very low bio-availability, as it is bound up in a plant substance called phytate. Phosphorous bound in phytate cannot be utilised by these monogastric animals because they have negligible amounts of the phytase enzyme in their gastrointestinal tract, which is needed to make the phosphorous from phytate bioavailable. This anti-nutritional effect of phytate is estimated to cost animal producers up to £1.3bn a year. In addition to this, phytate-bound phosphorous that is excreted can have negative impact on the environment, such as via eutrophication.

For the latest work, the plant-breeding scientists from Aarhus University used their expertise to make it simple and efficient to breed wheat with naturally high levels of phytase. Scientists in Nottingham Trent University's poultry nutrition research team designed and carried out a poultry nutrition trial to compare this new source of phytase to traditional poultry diet formulations. The trial shows that inclusion of the high phytase wheat in the feed is a highly effective way to unlock the phosphorous in the diet for use by the animal. **PD**

## Danish chickens finally allowed outdoors

DENMARK 17 APRIL 2017

After five months under quarantine for avian flu, Danish chickens were finally allowed outdoors in late April.

According to The [Copenhagen Post](#), poultry farms in Denmark had to keep the domestic birds locked indoors as a preventive measure to stop the spread of the avian flu H5N8

since November 2016.

"There will always be a risk of bird flu, but it is now lower than before," stated Per Henriksen, the veterinary director at the Danish Veterinary and Food Administration (DVFA). "Moreover, many chickens have been kept indoors for a long time, often in conditions that are not suitable for them when the weather gets warmer."

Mr Henriksen said the difficult decision to put the chickens under quarantine for so long has worked, as Denmark has been much less affected by bird flu than other

European countries. Over eight million birds have had to be killed in Europe, according to Henriksen, while Denmark only had two outbreaks in small flocks and 81 wild birds have been found dead due to the disease since the preventative measure came to force.

Although the first outbreak of bird flu in Denmark meant that all exports of poultry were stopped, the country was declared a bird flu-free zone on 22 February, and exports to a number of countries, including South Korea, have since resumed. **PD**

# HK poultry sellers call for financial help to fight bird flu threat

CHINA 6 APRIL 2017

Hong Kong's government has launched a two-month public consultation on the future of the city's live poultry trade, after study concluded that live chicken sales should continue and a central slaughterhouse was unviable.

The [South China Morning Post](#) reported that more stringent avian flu precautionary measures were suggested in the study, such as introducing physical barriers in poultry stalls to separate consumers from the live birds.

Ma Ping-lung, vice-chairman of the Hong Kong and Kowloon Poultry Dealers and Workers Association, said the government could consider offering interest-free loans to vendors to complete the facilities upgrade.

"The ventilation system has to [support good air circulation]. Air conditioners will also have to be installed in the entire wet market, and this will need consent from all vendors to see if the cost can be spread," Mr Ma, who runs a chicken stall in Ngau Chi Wan, said. "It would be difficult for some vendors to cover the cost."

For government-run wet markets, he said the cost should be covered by public money. **PD**

FROM OUR SPONSORS

## Let's speak avian: Tackling AI together

Avian influenza (AI) is one of the major concerns in the poultry industry worldwide. AI outbreaks often result in devastating losses due to the rapid spread and exceptionally high mortality rates caused by the highly pathogenic forms of the virus (H5 and H7 subtypes). As a list A disease, outbreaks furthermore have a considerable effect on trade.

The low pathogenic form (certain H5, H7 and H9 subtypes) can also have a huge impact on poultry production. It can cause respiratory signs and a delayed growth but can also exacerbate the harmful effects of other diseases such as Newcastle disease, infectious

bronchitis, laryngotracheitis and colibacillosis.

Vaccination has become increasingly important in the control of AI, but should be part of a multi-modal approach, including proper biosecurity and hygiene practices. Proper AI management also requires accurate strain identification to choose the most suitable type of vaccine.

**Boehringer Ingelheim** is the international leader in the AI vaccine market with over three billion doses sold against the three most common subtypes, and provides tools for building strong control strategies worldwide. Our vaccine portfolio is adjusted to local markets and is constantly upgraded to meet your needs in an evolving AI situation.

Our veterinary services and vaccination technologies teams are there to help you develop action plans and on-site support to optimize biosecurity and hygiene practices. They also keep a close watch on epidemiological developments, local regulations and changing policies to help guide our R&D efforts and fast-track the approval of urgent priorities.

FROM OUR SPONSORS

## Good fan maintenance improves ventilation



When ventilation requirements have been calculated accurately for live weight and stocking density but the house environment still feels suboptimal, poor fan performance is an underlying cause which is often overlooked.

Measuring how fast air is being pulled through a fan or how fast the fan blades are revolving per minute (rpm) at least once per flock is an easy way to determine if fan performance is optimal and fan capacity sufficient to fulfil the air requirements of the birds. Air speed can be measured using any number of readily available wind speed meters (anemometers) or by using a laser tachometer to calculate rpm.

Comparing both measurements against manufacturer recommendations for fan capacity will determine if fans are working properly.

If fan performance is less than expected, the following simple fan maintenance checks can be done:

- Bearings and motors
- Fan blade defects
- Fan belts
- Pulleys
- Louvers and cages
- Wattage

**Aviagen® Ventilation How To's** are simple, practical guides on how to achieve the best ventilation possible.

# Alternative protein project grows wings

US & CANADA 30 MARCH 2017

Fly farms could soon be producing 100,000 tonnes of protein and 60,000 tonnes of oil annually for the aquaculture and poultry feed markets in North America, after waste-to-nutrient upcycler AgriProtein announced it aims to build 20 fly farms in the US and Canada.

Jason Drew, Co-founder and CEO of AgriProtein, said "that each factory would be capable of producing 5,000 tonnes of protein and 3,000 tonnes of oil per year". The world's biggest fly-farmer and first commercial-scale insect meal producer, the company has global targets of establishing 100 fly farms by 2024 and 200 by 2027. In doing so it aims to mass-produce a replacement for the fishmeal that is currently an essential part of the aquafeed and poultry sectors, while simultaneously tackling the world's growing waste crisis by rearing fly larvae on organic waste which would otherwise go to landfill.

In order to achieve its ambition AgriProtein has now set up a dedicated North American team to develop its business locally and build an R&D capability. Headed by Jon Duschinsky, it will identify suitable locations and licensing

partners for fly farming operations. Mr Duschinsky explained he believes the time is right to be making a move in the US and Canada.

"As far as regulations go, whole BSF [black soldier fly] larvae fed on pre-consumer waste has already been approved in Canada for poultry and aquaculture. In the US it has been approved for aquaculture and poultry is pending," he said. And, now that the regulations are in place, he observes that the market is very receptive to the idea of utilizing this novel source of proteins and lipids.

"Feedback from poultry and aquafeed producers has been overwhelmingly positive. There is a recognition of the value of insect protein, particularly for transition feeds. We are in the process



of lining up a small number of partners to do full scale trials later this year," he points out. All that remains now is for the firm to raise the necessary capital to set up an extensive North American network, but Mr Drew is fairly confident of achieving this goal. "Having raised nearly \$30m to date, we are in the middle of a final pre-IPO fund raise to fund this current factory roll-out programme," he said. **PD**

## BE READY

for when it happens again

- Biosecure carcass disposal
- Protect your livestock
- Reduce disposal costs
- Maximise profit
- Minimise the spread of disease
- Fully Defra approved

AVIAN FLU  
OUTBREAK

waste  
spectrum

defra  
approved

Talk to the experts

**01905 362100** [www.wastespectrum.com](http://www.wastespectrum.com)

designed,  
engineered and  
manufactured  
in the UK

# How sustainable is American poultry farming?

**As global demand for protein puts increasing pressure on resources worldwide, broilers are emerging as a sector where sustainable mass-production is possible.**

**Words** Karen Christensen, Associate Professor, Center of Excellence for Poultry Science

The idea of sustainability in the poultry industry is important. Although there are many definitions, all being similar, one definition from the United States' 1990 Farm Bill defines it as "an integrated system of plant and animal production practices having a site-specific application that will, over the long term: satisfy human food and fiber needs; enhance environmental quality and the natural resource base upon which the agricultural economy depends; make the most efficient use of nonrenewable resources and on-farm resources and integrate, where appropriate, natural biological cycles and controls; sustain the economic viability of farm operations; and, enhance the quality of life for farmers and society as a whole". I would add to this definition that animal welfare is an important part of sustainable agriculture.

The broiler industry is well placed to continue to meet the definition of a "sustainable commodity". The continued demand for an economical, high-quality protein has positioned the broiler industry to be a leader in efficient production and will lead the protein demand as the population increases over the next 30 years. Developing economies around the world will move to a diet that's higher in animal protein and, due to the economies and sustainability of the broiler industry, demand will continue to increase.





As recently as the 1930s chicken meat was a delicacy and not only expensive but not available as we know it today. Most chicken dinners were either old egg-laying hens at the end of their productive life or the males from the egg layers that were raised for what little meat they could produce. It was in the '40s and '50s that real progress got underway in the development of meat-type genetics. This effort was a response to consumers' demands for quality chicken meat that would be available on a year-round basis and was economical. Previously, chicken dinners were more expensive than what we would consider prime cuts of beef today.

Rapid advances in genetics, nutrition and technology have all played an important part in increasing the efficiency of broiler production and progress in housing and environment will certainly play an important role in the future of sustainable production.

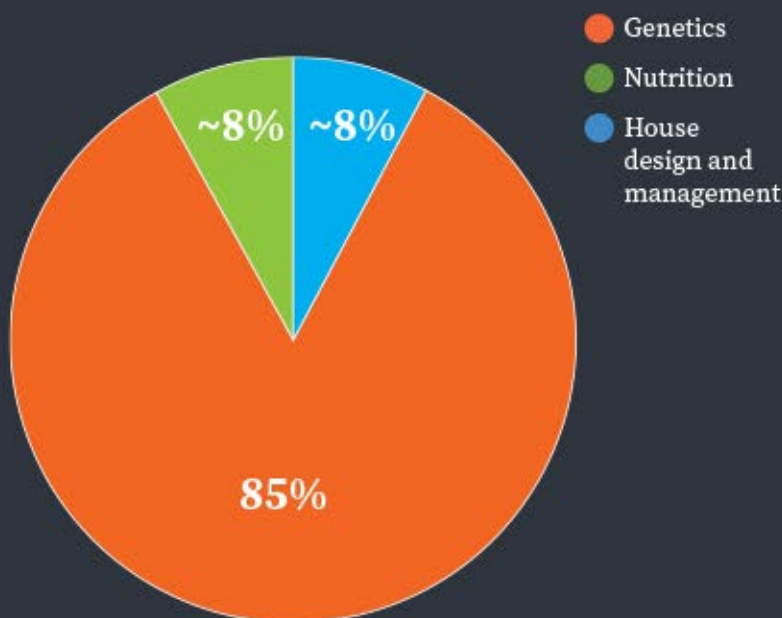
The improvements in growth and feed efficiencies over the past 50 years has seen individual bird weights nearly double, while feed conversion – a measure of efficient use of feedstuffs – has decreased by 17 percent. As progress in genetics, nutrition and housing continue, the reduction

## “Rapid advances in genetics, nutrition and technology have all played an important part in increasing the efficiency of broiler production”

in resources is significant. Every two-point reduction in feed conversion – from a 1.87 to a 1.85, for example, based on current production numbers – the amount of corn required is reduced by the equivalent of 75,000 acres (based on the corn per acre produced in Iowa). In addition, the use of other resources including water, diesel and fertiliser is diminished. These improvements also reduce the number of rail cars of feed required at feed mills and the number of miles feed trucks have to travel to make their deliveries. This same reduction in feed efficiency equates to at least 16,000 fewer trips to deliver feed to broiler houses.

The majority of broilers in the US are produced in a vertically integrated system which provides for nearly 42,000 broiler farms that are operated by family-owned farms. These farms currently raise, on average, nearly six flocks of broilers per year based on the final market weight. Because the growth rate has continued to improve, the number of houses needed to raise broilers is not increasing at a fast rate. Older houses must be replaced as they often no longer provide an environment for the broilers that meets welfare standards. New houses are also much more energy efficient with the incorporation of LED lighting and energy-efficient fans. The switch to LED

### Improvements in broiler production in the last 50 years is primarily due to genetic selection



Havenstein et al, Poul. Sci., 194 73:1785-1784



### Broiler performance in the US industry

Year	Age <sup>1</sup>	BW <sup>2</sup>	ADG <sup>3</sup>	FCR <sup>4</sup>	Mortality <sup>5</sup>
1960	63	3.35	24	2.50	6
1970	56	3.62	29	2.25	5
1980	53	3.93	34	2.05	5
1990	48	4.37	41	2.00	5
2000	47	5.03	49	1.95	5
2010	47	5.70	55	1.92	4
2016	47	6.18	60	1.87	5

<sup>1</sup> Age = days to market. <sup>2</sup> BW = pounds per bird at market. <sup>3</sup> ADG = average daily gain per bird in grams. <sup>4</sup> FCR = feed consumed relative to processing BW. <sup>5</sup> Mortality = percentage of birds that died during production.

<http://www.nationalchickencouncil.org/about-the-industry/statistics/>

## “Switching to LED can result in energy savings of 80-85 percent compared to traditional incandescent bulbs”

lighting has accelerated since information about production with LED bulbs has proved that performance is at least equal to that of growth and efficiency under incandescent bulbs; switching to LED can result in energy savings of 80-85 percent compared to traditional incandescent bulbs. The modern poultry-house environment is mostly controlled by sophisticated controllers that make continuous changes in temperatures and ventilation to maintain optimum environmental conditions for the broilers while saving gas and electricity. Any significant change in growth rate will result in a demand for additional housing, an increase in manure production and an increase in water usage.



Water is quickly becoming a scarce resource, as we have seen recently in agricultural areas of the US that have been hit by drought conditions. Water efficiency will become an increasingly important production parameter in years to come. Since the days to market have been reduced in the last 50 years, on average from 56 days to 47 days, the amount of water used per bird is lower just due to the fewer days each one spends in the house. Although water consumption increases with the age of the broiler, the amount of water consumed per pound of body weight decreases.

There is a renewed interest in food production, particularly in how food animals are produced. As a result we are seeing new production schemes being developed or old ones from previous times being brought back. Pastured poultry, birds with organic, outdoor access and slower-growing or heritage breeds are being raised in greater numbers for a new market. These choices for consumers are more widely

## “Water is quickly becoming a scarce resource”

available but none fits the definition of “sustainable”, as they add to the use of resources such as land (for feed production and housing), water and energy consumption. The industry is working to improve the modern broiler but this bird is well designed to be a part of the “sustainable” food supply, especially as world demand for animal protein increases and greater protection is required for the resources needed resources to produce them. **PD**

## Ross 308 is Simply the Better Bird



The Ross® 308 facts:

- Leading FCR
- Excellent Meat Yield
- Low Cost Production

Choose the better bird.  
[www.Aviagen.com/Ross](http://www.Aviagen.com/Ross)



# Water management 101

Words Glennis Kriel

**With water in increasingly short supply in many parts of the world, the pressure is on to make high-consumption industries such as poultry farming as efficient as possible**

**W**ater is a critical component of broiler-farming success. It not only influences birds' performance and growth, but also has a direct impact on biosecurity, according to Nir Leventer, manager at the livestock division of Plasson in Israel. Leventer explains that a shortage of water can have a negative impact on feed conversion, while wasted water might become a breeding ground for harmful pathogens and fungi. Wasted water can also have a negative impact on litter quality, which in turn can lead to respiratory diseases and other health risks.

But what can farmers do to make their water use more efficient? Here are eight mantras of water management to help keep your flock healthy and your wastage to a minimum.

## 1 Ensure an adequate supply

Modern, high-performing broilers require more water than broilers of the past. A study by CL Williams, GT Table and SE Watkins, comparing broiler flock daily water consumption and water-to-feed ratios for flocks grown at the University of Arkansas Applied Broiler Research Farm (published in *The Journal of Applied Poultry Research* on 1 December 2013), found that flocks raised under commercial conditions from 2010 to 2011 consumed an average of 50.32 gallons of water per 1,000 birds per day. Daily water consumption for flocks raised on the farm between 2000 to 2001 was lower at 42.41 gallons per 1,000 birds and even lower at 37.07 gallons per 1,000 birds for flocks reared in 1991. Significant differences were also observed in the water-to-feed ratios during these periods.

Leventer estimates that, depending on their age and climatic conditions, birds these days consume 1.6 to two times more water than feed: "Generally speaking, birds end up consuming about 200g of feed and 350ml of water per day by the time they reach slaughter age. This amounts to about 15,000 litres of water per day for a broiler house with 45 000 birds," says Leventer.

For a broiler farm to be successful, producers therefore have to ensure they have access to enough water to meet the daily requirements of modern birds. It should also be taken into account that the demand for water increases with age. Water infrastructure is therefore required, with the capacity to deliver more water as the birds get older. "Failure to supply birds with enough water at the right time will have a negative impact on the feed-conversion ratio and result in birds not reaching their full genetic potential," says Leventer.

## 2 Design water-efficient houses

Birds subjected to warm climatic conditions drink more water than birds kept in a cooler environment. According to Cobb-Vantress's article *Water Management in Broiler Flocks*, water consumption increased by 6 percent for every one degree Celsius increase between 20 to 32 degrees Celsius, and 5 percent for every one-degree increment from 32 to 33 degrees Celsius. Feed consumption increased by 1.23 percent for every degree above 20 degrees Celsius.

For the best use of feed and water, birds should therefore be kept in optimal climatic conditions. Since a flock's climate is controlled with the help of water – in both cooling and humidifying the poultry house – your choice of house and ventilation system design also have a big influence on water consumption.

According to Jacques Bouwer, general manager of PSA Livestock Equipment, South Africa: "Environmentally controlled systems are preferred to naturally ventilated houses, where curtains or louvres are used to control climatic conditions, because these system will be subjected to smaller climatic fluctuations. For this reason less water is required to keep the climate in these closed systems at optimal levels."

## 3 Choose the right cooling system

Evaporative cooling pads tend to use less water than high-pressure nozzle cooling systems in certain applications. The efficiency of the system will depend on various factors, including the age and maintenance of the system.

Bouwer advises that cooling pads usually work best when temperatures need to be lowered in high-humidity conditions, while nozzle cooling is a better option when you need to cool down drier areas where the air can absorb more moisture. "Relative humidity, location and environmental conditions all had to be carefully considered when choosing the most suited cooling system for a specific farm," says Bouwer.



## 4 Use an efficient drinker system

Closed-nipple drinker systems are much more water efficient and hygienic than open “bell” drinker systems. This is because water in bell drinkers can easily be contaminated and spilled, according to Johannes van As, an agricultural engineer at WSM Leshika Consulting Engineers, based in South Africa.

Pressure in a nipple drinker system determines the water flow rate at the drinker, says van As, and, “Pressure should be adjusted regularly to adjust the flow rate according to the birds’ growing requirement. If the flow is more than what the birds consume, water will be spilled.”

Careful planning is also needed to place enough drinkers at the spots. “The number of birds competing for water per drinker needs to be taken into consideration, since too many birds per nipple drinker will result in a

## 5 Manage water quality and temperature

Closed water-provision infrastructure with no leakages will help to ensure your water remains pure. Contaminated water used for drinking or cooling purposes can be a health risk for birds and have a negative impact on production. “Water samples should be taken and analysed regularly to ensure the water meet the requirements for drinking and cooling purposes before use,” says van As.

Measures should also be taken to keep water cool. Van As suggests water should be stored in a closed storage facility situated in a cool, shady area. And according to Bouwer, producers will have to flush their water more frequently if it’s not stored in a cool place and its temperature rises: “Flushing more often to keep water temperatures low increases water usage on the farm, but remember that birds will not drink water if the water temperatures are too hot and this will have a negative impact on your feed conversion ratio.”

## 6 Monitor and control

Most modern systems are automated and will alert poultry producers to any problems through various channels of communication. According to Bouwer, it’s now possible to much better monitor and manage water, feeding and ventilation systems using technology.

Bouwer adds that the installation of durable and reliable water meters in the long term allows producers to monitor their patterns of water consumption accurately and this can help them to identify potential problems early.

## 7 Think outside the box

Purified and recycled rainwater, harvested from roofs and the surrounding terrain can provide a large portion of the water requirement of a broiler farm, according to van As. A typical broiler house – which van As defines as one that accommodates around 50,000 broilers with a roof area of approximately 2,250 m<sup>2</sup> – might provide up to 1,125,000 litres of water a year, if your farm is situated in an area with a mean annual rainfall of 500mm or more.

## 8 Use high-pressure sprayers for cleaning and disinfecting

Efficient cleaning and disinfection of poultry houses by means of high-pressure spraying equipment (±60 Bar) will ensure minimal water wastages, according to van As.

# Come and Browse our Range of Poultry Titles



## From Smallholding Books...

### Keeping Chickens

Practical Advice for Beginners



### Keeping Chickens

A practical and easy to follow guide covering the basics of poultry husbandry, for the new or established poultry keeper.

Only  
£24.95

## ...and Organic focused titles...

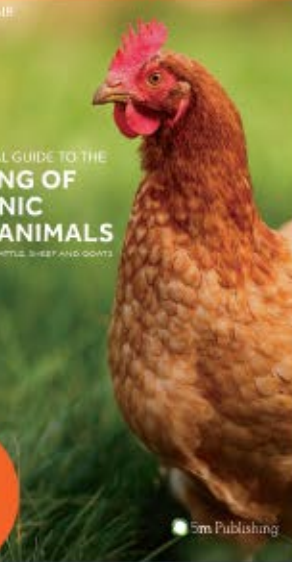
ROBERT BLAIR

### A PRACTICAL GUIDE TO THE FEEDING OF ORGANIC FARM ANIMALS

FISH, POUALTY, CATTLE, SHEEP AND GOATS

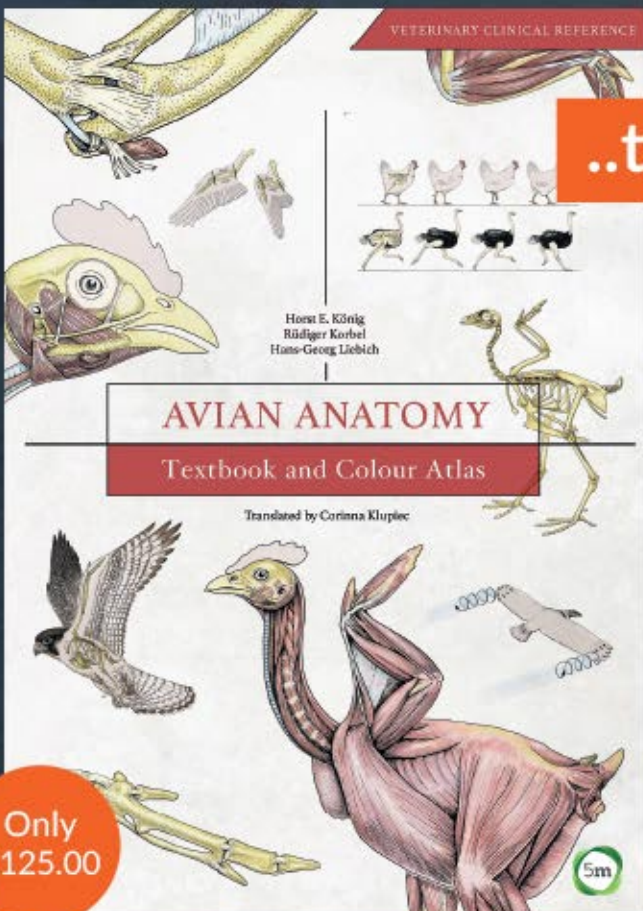


Only  
£24.95



### A Practical Guide to the Feeding of Organic Farm Animals

Practical guidance on organic feeding based on scientific research and authored by a renowned animal scientist.



## ..to Textbooks

### Avian Anatomy

This beautiful colour atlas brings together annotated images and anatomical terms. High quality images and schematic diagrams.

Bringing together annotated images and anatomical terms, this reference book is a unique combination of a practical, clinically oriented textbook and pictorial atlas of avian anatomy.

Containing very high quality photographs, including histological and radiographic images and schematic diagrams, this edition focuses on ornamental birds and poultry. Among the various species examined are chickens, ducks and geese, as well as budgerigars, psittacines and many others.

Order Now at [www.5mbooks.com](http://www.5mbooks.com)  
or email [contact@5mbooks.com](mailto:contact@5mbooks.com)



5mBooks.com

# Energy saving tips

## Energy represents one of the biggest costs in poultry production. Here are nine ways in which costs can be reduced in intensive production systems

Words Glennis Kriel

Over the past few years, rising fuel and electricity prices have resulted in a huge escalation of poultry production costs in many countries. Simply downscaling usage is easier said than done, since modern birds require a much higher level of climatic control than their ancestors needed. The smart way to reduce costs is by improving energy use efficiency, according to Khulu Phasiwe, media spokesperson for the electricity supplier Eskom in South Africa. Here are his tips for keeping your flock's energy consumption to a minimum:

### Know your usage

Do an energy audit to determine the amount of energy you're using, and track daily and seasonal variations in usage. By monitoring usage, consumption and demand, you will over time be able to identify irregularities. The captured data could be benchmarked against other producers' data to identify areas that can be improved.

### Minimise air leakages

There are two ways in which leakages affect climatic conditions in poultry houses. One is where outside air infil-

trates the house and the other when air is leaking uncontrolled out of the house. In hot weather air leakages will result in fans having to run longer to keep temperatures low. In cold weather it will result in more energy needed to keep houses warm.

Fixing cracks in walls, roofs and curtains, covering tunnel inlets with plastic and covering unused vents with polyurethane foam will help to reduce these leakages. The volume of air leaking out of the house can be determined with a static pressure test.

### Insulate the house

Insulate walls and roofs to prevent heat from escaping out of the house and fix any damage to insulation you find as soon as possible. A huge variety of insulating material is available on the market.

Here are a few pointers on what you should consider:

- The wall and roof panels of environmentally controlled houses are usually standard. Wall thickness and the density and type of insulation material you use will determine the insulation properties.

- Construction material with superior insulation properties is available and can be used during the construction of new houses.
- Houses should be orientated to make the best of winter sun and shading in summer.
- Optimise the outside surfaces of the house. The smaller the outside surfaces, the less area for air to infiltrate and heat to escape.
- An insulated ceiling can be fitted, or a polyurethane foam, which hardens after application, can be sprayed under the corrugated iron of the roof for insulation purposes. Roofs can also be painted with paint that has insulating properties.
- In extreme weather conditions the use of polyurethane foam in walls has been found to reduce heat loss by up to 85 percent.
- In some cases it might be advantageous to install a ceiling curtain.
- Be careful: some insulating material available on the market is not rodent proof.







*Image courtesy of U.S. Department of Agriculture*

- Outside walls can be built with double-row bricks with insulating material in between, such polystyrene granules, or just an air space.
- All insulating material should be washable.

### Stir the air

The use of ventilation fans, especially in winter, to move hot air more evenly to the floor, will help to improve air temperatures at bird level, and will encourage litter drying while reducing heater operation time.

### Litter management

Good litter management will help to prevent a build-up of ammonia and in effect it will reduce fans' run-time for the removal of ammonia. The house should therefore be properly ventilated to reduce litter moisture and water leakages should be repaired as soon as possible. Litter should also be turned and de-caked as often as needed.

### Ventilate properly

Adjust ventilation in line with the needs of the birds and house conditions.

Devices such as turning vanes, airflow straighteners or splitters can be used to accommodate the air profile inside poultry houses, while demand changes can be accommodated by adapting the airflow with inlet vanes, outlet dampers or fan speed control. Variable speed drives on the fans could also be considered for this purpose.

### Use new technology

Old motors should be replaced with energy-efficient motors. Soft starters can be considered on fans and pumps where no variable loads occur, while variable speed drives can be considered where variable loads occur. The variable speed drives will allow pumps and fans to only use as much energy as required to perform a specific task. Incandescent light bulbs should also be replaced by more energy-efficient light bulbs or skylights.

Where lighting is used during the night, it is advised to use light-level switching, which will illuminate only when the light levels drop too low; you can set the poultry house lights to switch on again when the outside light reaches a certain level.

### Keep it clean

Keeping fans, shutters, screens and

evaporative cooling pads clean will help reduce the pressure against which fans have to work, and so will help improve your poultry house's energy efficiency.

### Maintain your equipment

Routinely check that cooling and heating equipment are working properly. Electronic devices, such as timers, sensors and thermostats, which help to control climatic conditions, have to be regularly tested, cleaned and calibrated. Devise a planned maintenance programme that should be adhered to throughout the year.

### Go green

Alternative energy sources, such as solar, wind, biogas and wood gasification, have been used by many producers across the world to reduce their reliance on electricity and propane gas. When deciding on a suitable alternative, consider the cost of installation, the return on investment, the availability of this resource and how it will be able to match the fluctuating energy requirements of the farm. **PD**



# Zero waste to landfill?

## How one major food firm made it a reality

Words Andrew Amelinckx

Sending zero waste to landfill is an admirable thing to aspire to but impossible to achieve in reality, right? Wrong. West Liberty Foods, a major US meat-processing company, has been certified landfill free for the past five years. Andrew Amelinckx finds out how they did it

Back in May 2011, Michele Boney, the Director of Environmental Health and Safety at West Liberty Foods, a US meat-processing company based in Iowa, received a phone call from Ed Garrett, the company's CEO. Garrett had recently been at an environmental conference and had been inspired by a presentation on zero-waste facilities. He told Boney he'd like to see this happen at their company. He then added that he wanted to get it done in a year.

Within 12 months they had achieved their goal, becoming one of the first companies in the US to be certified landfill

free, which means less than one percent of their total waste goes to a landfill and only three percent to an incinerator. The rest is recycled or composted.

Over the years, as the company has continued to grow, they've not just maintained this status but have continued to improve their sustainability practices at their five facilities in Iowa, Illinois and Utah. Since 2012, the company has diverted more than 520 million pounds (over 235,800 metric tonnes) of waste from local landfills.

West Liberty Foods, which is owned by a cooperative of turkey farmers and



**ZERO WASTE!** The main entrance to the company's plant in West Liberty, Iowa. Source: Wikimedia Commons.

is a large producer of sliced deli meats and individually quick-frozen foods for private labels, was already ahead of the game when the company decided to take on the challenge of become landfill free. They were the first in the industry to become ISO 14001 certified back in 2004. ISO 14001 encompasses a group of environmental standards that help minimise a company's negative impact

on the environment. "Part of ISO is to try to continuously improve your processes," said Boney during a presentation at the International Production & Processing Expo on 31 January 2017. "And one area is your waste streams. I felt this was our route to start looking at our waste streams and what we could do there.

Plus, it's the right thing to do for the environment and if we can do it, why not?"

The company turned to NSF International, a product testing, inspection and certification organisation based in Michigan, which had certified West Liberty Foods' original ISO 14001 status, to help it achieve the further goal of going waste free. Together they identified more than 60 waste streams – paper, plastic, metal, wood and food, to name but a few – which meant finding buyers for each and every one of these types of waste. Today, these items are being recycled, composted and incinerated to create energy.

"We reached out to recycling centres in our communities that we were in, composting facilities, cement kilns in the area, as well as incinerators," said Boney.

But to reach their goal, it took changing

## "Less than one percent of their total waste goes to a landfill and only three percent to an incinerator"

the company's culture and getting every employee to play their part, from the people in the processing areas and offices to top management – even the children at the company's daycare centre. Boney said the employees' participation and training was key to making the changes happen. Among the innovations was the company's decision to remove the rubbish bins from the processing areas and offices and replace them with recycling containers. Each facility also had a "core

team" responsible for implementing and improving practices so that they could continue reducing the amount of waste going to incinerators and instead find ways to recycle the material.

There were some challenges, admitted Boney, including not realising that incinerators shut down one month a year for maintenance, which left the company scrambling to find a place to store waste (they ended up having to rent trailers and land) until the incinerator was back online.

While West Liberty Foods initially had to invest in going landfill free, in the end, it has saved the company money by creating revenue streams from the material – such as cardboard, clean plastic, metal and paper – that they now sell to recyclers instead of toss into a landfill.

The core teams continue to work on improving the company's recycling processes and are looking into incorporating an anaerobic digester and solar and wind power into their facilities, said Boney. They hope their success will inspire other businesses to undertake similar initiatives. **PD**

## EggTester.Com

Officially known as **ORKA Food Technology**, is the world's leading manufacturer of egg-quality testing devices.



### Egg Analyzer

It measures weight, yolk colour, albumen height, Haugh units and USDA Grade in 17 seconds!



### Egg Force Reader

It measure egg shell destruction strength



### Eggshell Thickness Gauge

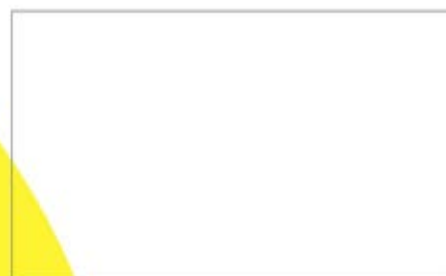
It uses ultrasound to measure the thickness of the eggshell without breaking

[www.eggtester.com](http://www.eggtester.com)



### Wireless Egg Node

It enables simultaneous, high-speed sensing and real time data aggregation from multiple wireless eggs



### Egg OR Candler

Portable LED battery/ mains operated Egg Candling Lamp



### Digital Haugh Tester

It measures the height of egg albumen and allows you to manually determine the Haugh unit



# Focus on South Africa

## One farmer is fighting harsh conditions with all-in-one micro-coops and a seriously tough breed of chicken

Words Chris McCullough

**A**cross Africa, many families rely on poultry farming, both to produce meat and to derive income from eggs. However, in order for families to live off raising chickens, they need two things: first, basic education in how to keep them, and second, a breed that will last.

With this in mind a farmer in South Africa with a huge passion for animal breeding is transforming the poultry industry and helping thousands of families at the same time. Originally from Zimbabwe, 55-year-old entrepreneur Mike Bosch moved to South Africa back in 1983 when security issues were becoming a concern for him. He set up his own poultry breeding business in Bela-Bela, a town in South Africa's Limpopo Province.

Already a respected breeder of Beefmaster and Boran cattle, Mike turned his hand to developing his own free-range poultry breed around 20 years ago and is now changing lives across the continent. His indigenous Boschveld chicken

is a three-way cross between the African breeds Venda, Matabele and Ovambo – in a ratio of 50 percent, 25 percent and 25 percent respectively.

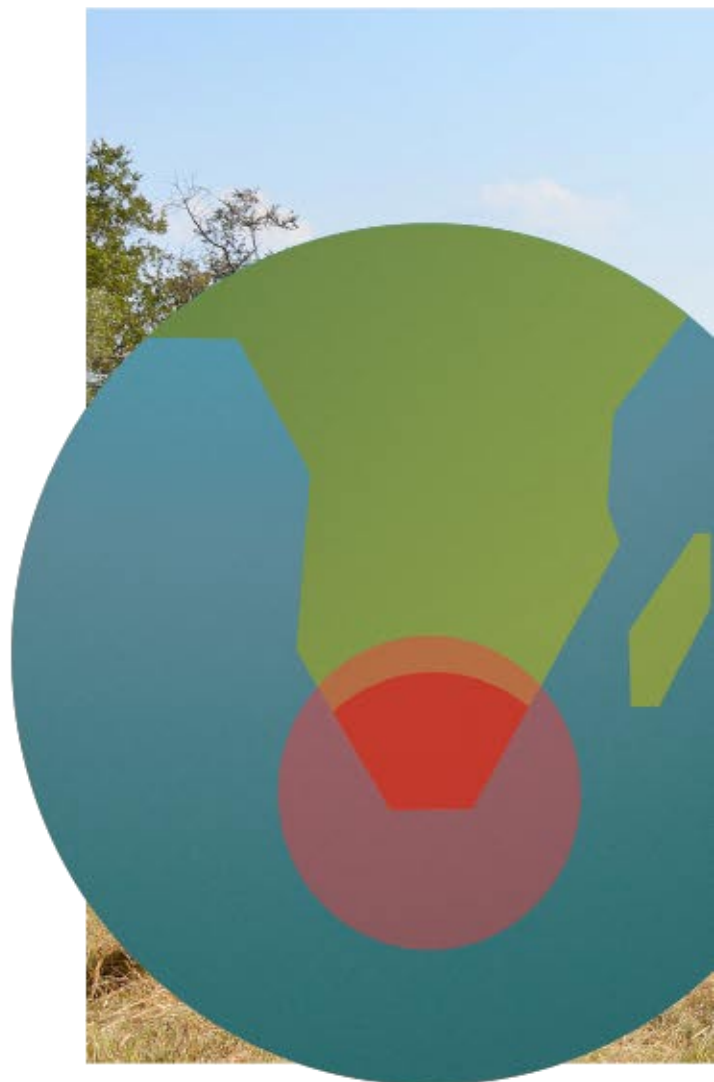
Well over two million of these Boschveld birds, which have a distinctive red and brown plumage interspersed with white feathers, are now in existence across Africa thanks to the breed's resilience – these birds are able to handle the toughest conditions the continent can throw at them.

**“These birds are able to handle the toughest conditions the continent can throw at them”**

When Bosch was breeding the Boschveld he had a number of goals. “The Boschveld chicken is bred purely for hardiness and health,” says Bosch. “They survive and produce on what nature can provide, with only a small amount of maintenance feed to boost production. Africa can be a tough place to exist, particularly with varying climatic conditions, so we needed a breed that could adapt to the weather changes. Also, chickens in Africa are kept in free-range conditions and need to keep producing in these conditions.”

Bosch says the Boschveld's inbred hardiness helps it to withstand poultry diseases. The birds on his farm are tested every three months for bird flu and salmonella and are vaccinated for the regular diseases including Newcastle disease, Gumboro disease and coccidiosis.

There are minimal biosecurity measures at the farm as the Boschveld is so resilient to disease it can withstand most threats, aside from a hungry jackal. “The cocks are strong, aggressive and have





noble conformation,” says Bosch. “Boschveld hens are very fertile with strong, healthy offspring that grow well. They will start producing eggs at less than 20 weeks of age and can produce chicks that thrive very well indeed.

“Cocks are ready for slaughter at 12 weeks old,” he continues, “depending on nutritional levels, and produce a meat with a real distinctive flavour. We also do not trim the beaks on the Boschveld chickens as there is no need.”

Bosch has around 50,000 hens in total on his 20-hectare farm at Bela-Bela and is very much focused on the breeding aspect of the industry. He keeps around 7,000 birds for laying and runs 100 roosters for every 600 hens.

“I have around 30,000 eggs in incubators at any one time which will be hatched and sold on for breeding or laying,” says Bosch. “The Boschveld hens are lasting about two-and-a-half years in total before they need to be replaced. They are laying two eggs every three days on average and I receive about R13 (£0.76) per egg when selling them unhatched. I hatch eggs every week as customers want them at different stages, hatched or unhatched. Day-old chicks are making slightly higher returns at R15 (£0.88) but can be as high as R50 (£2.93) if they’re going to West Africa. If I sell them at four weeks of age then I receive around R45 (£2.64) and at point of lay, which is around 18 weeks, they are sold at R100 (£5.87).”

He sells birds into 17 countries within Africa and has recently embarked on another scheme to help poorer farmers be-



**MIKE BOSCH** | Originally from Zimbabwe, 55-year-old entrepreneur Mike Bosch moved to South Africa back in 1983 when security issues were becoming a concern for him



**“Bosch has set up a programme that supplies small farmers and poultry keepers with a chicken coop, chickens to put in it, feed for the birds and some vegetable seeds”**

come more sustainable and produce their own poultry, eggs and vegetables – while harnessing the sun’s energy – to provide an income.

Bosch has set up a programme that supplies small farmers and poultry keepers with a chicken coop, chickens to put in it, feed for the birds and some vegetable seeds. He also supplies some LED lights and a solar panel for the top of the coop that will produce enough energy to charge mobile phones via a small battery pack.

It’s a programme that, according to Bosch, could transform the lives of thousands of Africans who are prepared to commit to the scheme. Not only does the package provide food for the families to consume and sell, but it also provides fruit and vegetable seeds that can be sown in the soil fertilised by the chickens. “The chickens fertilise the area on which the coop stands,” says Bosch,

explaining that the coop is intended to be moved by producers once the chicken manure has fertilised the ground. Once fertilised, the area will grow almost anything, he says. “Spinach, tomato and



# Premium Poultry News Channels

Global online poultry industry news and information resources

The Poultry Site | ElSitio Avícola | The Poultry Site.cn

## Targeted

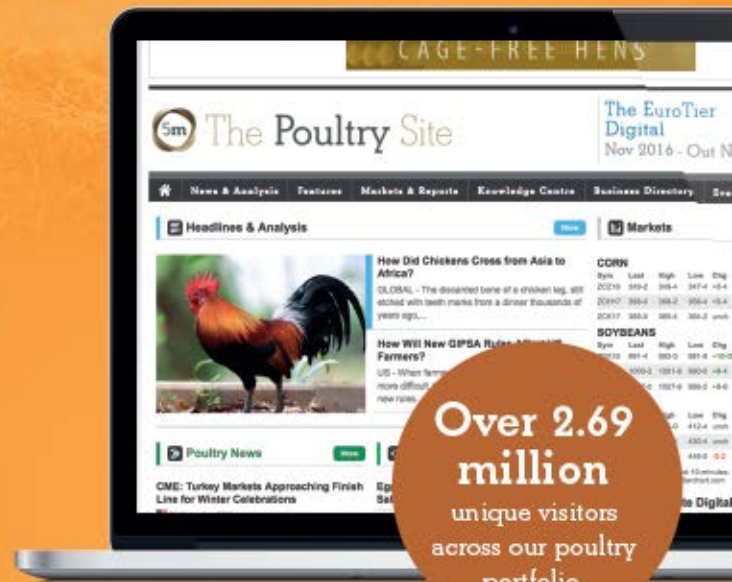
Our three websites target the key global poultry regions your company needs to speak to with targeted content written in English, Spanish and Mandarin.

## Communications

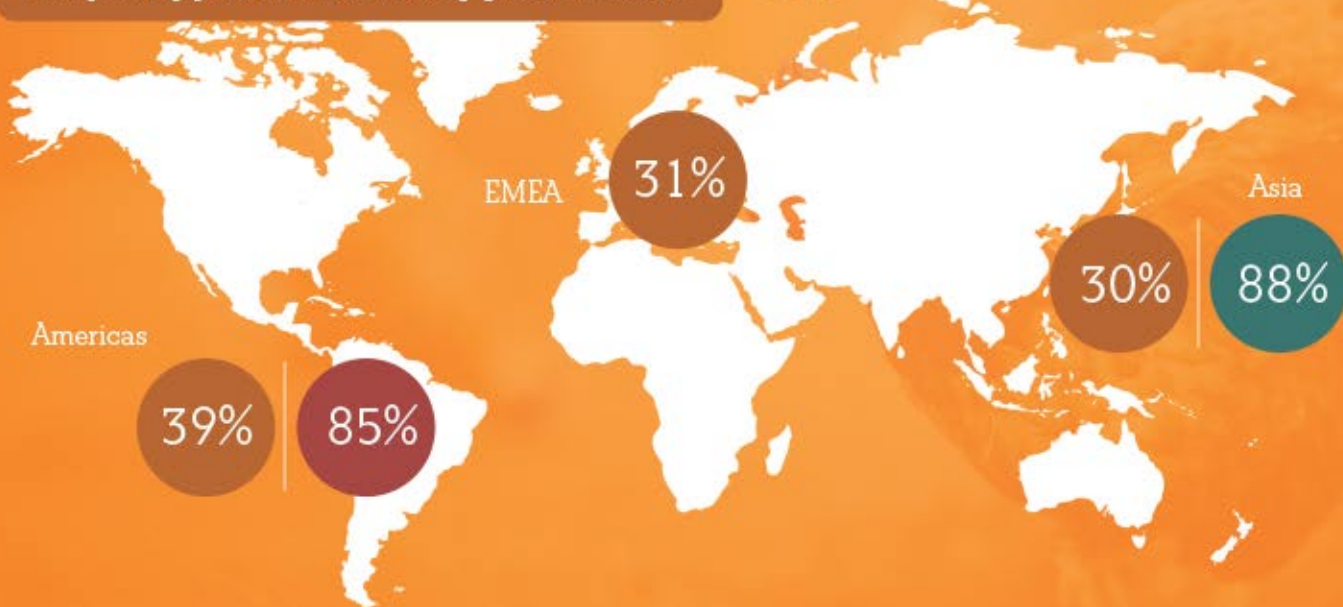
Our unique promotional opportunities allow communication with poultry producers, veterinarians, industry professionals, farmers and students.

## Online

Our in-depth news and information attracts over 3 million unique users per annum across our global online portfolio.



Our poultry portfolio reaches key global markets.



“I sold 5,000 of these systems in one year and they are becoming very popular indeed”



beetroot are the most common seeds that people request to sow once the chicken coop has moved, but also maize and cassava.”

“The cheapest form of protein for people is found in eggs,” says Bosch. “We can supply a six metre by three metre cage with 16 hens which can produce 40 eggs per day for the household. Replacement birds, feed and seed are also supplied in the package along with some basic training in how to look after

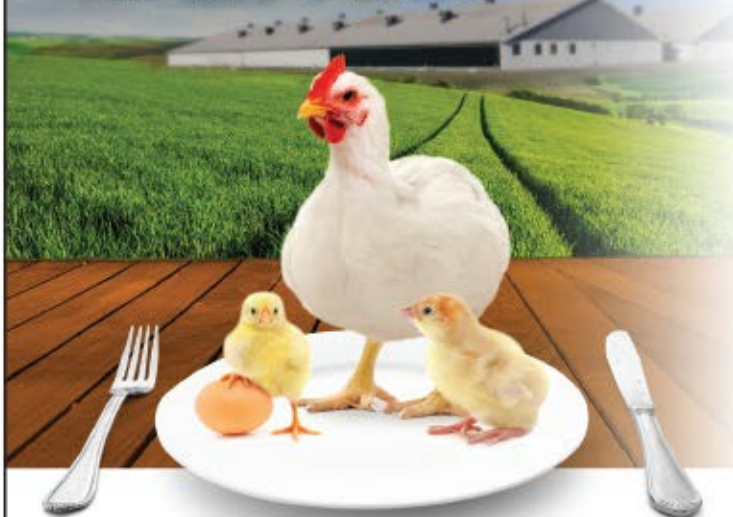
the birds. All the drinking and feeding equipment is included along with the solar panel, LED lights and the battery pack. It costs around R95,000 (£5,573) and can be delivered anywhere for an extra cost if over 300km away.

“We have full export accreditation for all our birds so selling this package into another African country is not a problem,” he continues. “Ideally we would like to sell 25 of the cages into a region so that the owners can all learn from

each other and of course offset the delivery cost and revisit costs. I sold 5,000 of these systems in one year and they are becoming very popular indeed.”

“It’s ironic that the South Africa government will not set up a support scheme for people to buy this form of food security,” adds Bosch, “but at the same time they are buying thousands of birds off me in a year.” PD

## Food Safety Starts on the Farm.



### Healthier animals produce safer food.™

Pre-harvest food safety is an emerging field with new, research-proven technology to reduce pathogens in food processing. At Diamond V, we help strengthen the global food safety infrastructure.

#### Original XPC™ supports:

- Pre-harvest food safety
- Poultry health and well-being
- Production efficiency
- Conventional and antibiotic-free systems



You are a **critical link** in the food safety chain. Stronger links mean **safer food** for everyone. Strengthen your link with **Original XPC**.

ORIGINAL  
**XPC**™

**Diamond V**  
The Trusted Experts In Nutrition & Health™

For more information, call 800-373-7234 or visit [www.diamondv.com](http://www.diamondv.com)



# Introducing...

## The Modern Game Fowl

Words Alice Mitchell

A handsome bird with an upright posture, the Modern Game has fifteen different recognised colour variants, according to the breed's club in the UK. These colours include black-red, duckwings, brown-reds, piles, and birchens. Seen from above, it has been compared to a flat iron.

The breed's history is rooted in the abolition of cock fighting, which happened in 1849 in the UK. This led over several decades to the development of the Modern Game breed, as enthusiasts bred the birds purely for exhibition purposes. Breeding of large flocks of the Modern Game was largely associated with the upper classes, with top birds fetching high prices.

However, the popularity of the breed declined over the last century, particularly over the course of the two world wars, and now the Modern Game is only kept in small numbers. According to the Rare Breed Survival Trust, the decline of the breed was partly due to unwillingness of top breeders to sell good birds to newcomers. The Trust notes that today's breeders are likely to be much more helpful to those wanting to set up a flock!

Since it is purely a showing breed, the Modern Game is unsuitable for the table, and females only produce around 90 small eggs per year. Nevertheless, these birds make good pets as they are generally less aggressive than other game breeds. **PD**



# Farming in focus

## Meet the people driving change in their industry

Words Ellen Hardy

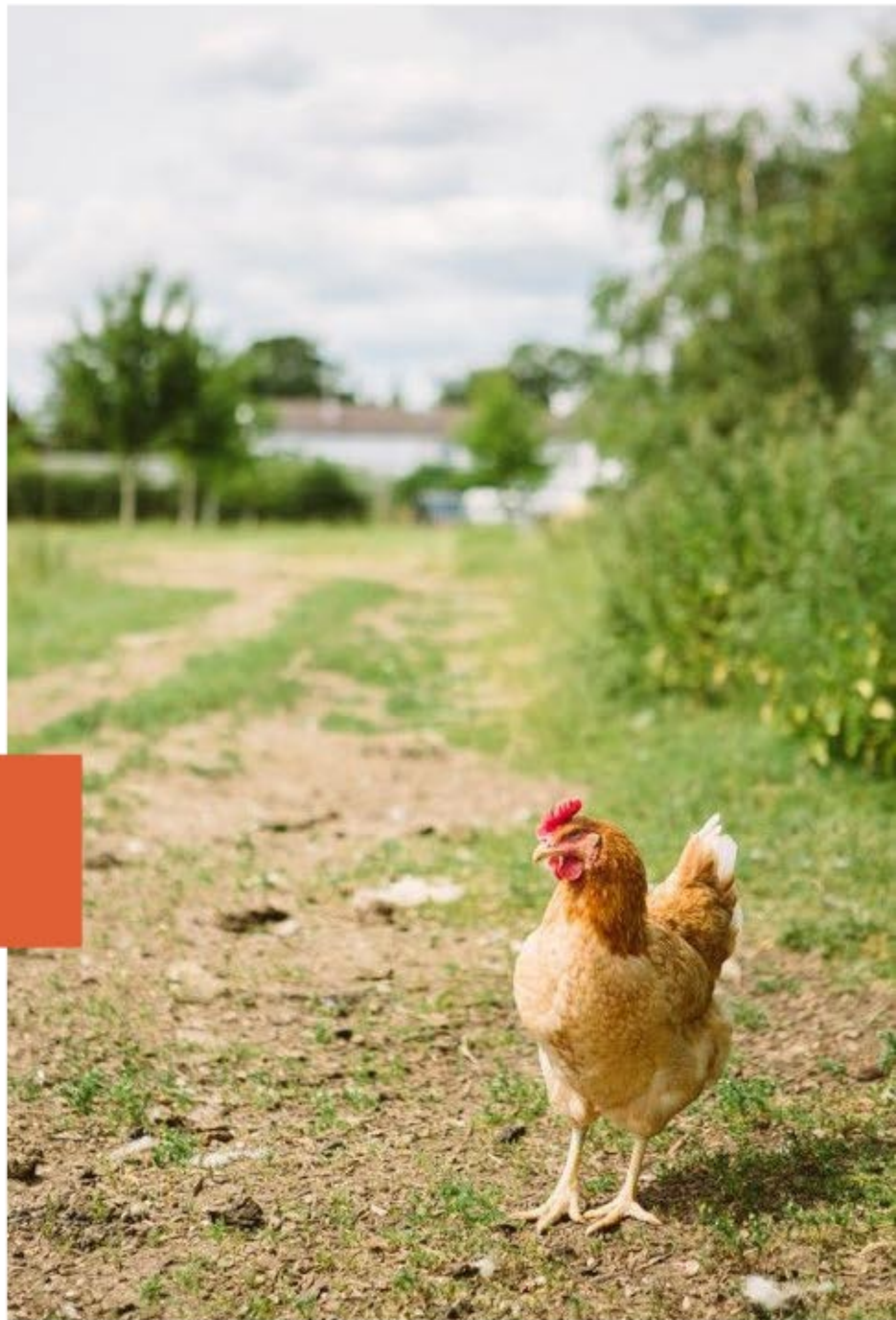
**Ashleigh Bright**  
Head of Science  
FAI Farms

Founded in 2001 on Oxford University farmland, the Food Animal Initiative (FAI) has grown into a global consultancy operation with additional locations in Scotland, Brazil and the USA. According to their Operations Director Karl Williams, “FAI has a highly skilled science team made up of veterinarians, research scientists and geneticists who work alongside commercial agriculturists to deliver research, leadership programmes and innovation for our global food chain partners.” Here FAI’s Head of Science, Ashleigh Bright, explains some of the key sustainability challenges facing poultry producers today.

### How can you assess the sustainability of a commercial poultry operation?

We assess sustainability of all systems using our 3Es framework. We identify issues the operation is facing under each E area – Ethics (people and animals), Environment and Economics. We then work with clients to implement or influence change. Solutions will differ from business to business – these can range from data software to assistance with flock management, research projects to answer specific questions, auditing or developing new standards.

Progress is assessed by measuring it – preferably using data measures. The measures used need to be evidence-based, scientifically valid and practical to collect – otherwise they won’t get measured!



**Have you seen any changes in the awareness of poultry businesses about what sustainability means and why it might be important?**

The biggest sustainability challenges faced by commercial production of poultry (as opposed to backyard or mixed farm systems) are welfare issues – confinement, bone health and feather pecking in laying hens; fast growth rates and barren environments in broilers – and their reliance on grain-based diets.

There is growing recognition of the importance of welfare – there have been definite shifts towards higher welfare systems, as illustrated by the move away from cage systems for laying hens and providing more enrichment for broilers (i.e. natural light and perches). However progress around welfare improvements by genetic selection for bone health and growth rate is slower.

In terms of feed, there is always a drive to improve efficiency and reduce feed conversion because this reduces cost. There

is also growing awareness surrounding the correlation between livestock feeds and deforestation (i.e. sourcing of soy), however the audit process for obtaining deforestation-free soy is currently not that robust.

The main issue is with quantity of production. In 2000, the Food and Agricultural Organisation (FAO) projected that global demand for animal source food would double by 2050. Those projections are based on global trends for a growing population, increasing incomes and urbanization, and form the basis of many scientific and policy documents related to livestock production. Poultry are usually considered very efficient converters of feed to meat and therefore important in meeting future global protein demands. The issue however is that this efficiency requires high quality feed – no matter how efficiently produced, direct consumption of cereals by humans is ecologically more efficient than consumption of animals fed with these cereals.

### Is the goal always zero carbon footprint?

Carbon footprint is one measure of sustainability. Reducing it is a worthy goal and vital to addressing the impacts of climate change – but it needs to be done without making other sustainability issues worse – animal welfare for instance, or farmer livelihoods.



### What are some of the most promising sustainability solutions you've come across?

Dual purpose breeds could help solve both welfare issues and waste issues, while technology is important – automated data capture allows us to consistently and constantly measure. This makes objective comparisons between systems and breeds much easier and more transparent, and could also give customers more trust in the products they are sourcing in terms of sustainability issues. Another promising area is using alternative protein sources and / or using by-products or waste products as feed. This is somewhat constrained by legislation in the West,

## “Dual purpose breeds could help solve both welfare issues and waste issues”

but can be very efficient in other parts of the world.

Another key area is the behavior of consumers. The world population consumes around 10 percent more food than it needs, while almost nine percent is wasted. Efforts to reduce the billions of tonnes of food lost could improve global food security, and help prevent damage to the environment. There is increasing recognition by government and some retailers that this is a direction we need to take.

Intensive poultry farming has a lower carbon footprint but organic farming is promoted as an environmentally sensitive ideal – is there a happy medium?

Carbon footprint is only one measure of sustainability. Organic farming is usually considered better for the environment (and for some aspects of welfare in broilers, as they use different genetics) but the cost of production mean that it isn't as viable in the market. Using a framework of sustainability such as the 3E's framework, compares sustainability issues from both systems in a much broader context beyond environmental issues. **PD**



# YOUR QUESTIONS

Poultry professional Mike Colley answers the best questions from The Poultry Site community.



**Got a question?** Email [newsdesk@5mpublishing.com](mailto:newsdesk@5mpublishing.com) | Twitter [@thepoultrysite](https://twitter.com/thepoultrysite) | Facebook [/ThePoultrySite](https://www.facebook.com/ThePoultrySite) | Forum [forum.thepoultrysite.com](https://forum.thepoultrysite.com) | Post Unit 10, Southill Business Park, Cornury Park, Charlbury, Oxford, OX7 3EW

## Q: How do I reduce the carbon footprint of my backyard flock?

**A:** If it were simply reducing the carbon footprint of the eggs you put on your table then mass produced farm eggs are the sensible option. Once we start producing meat and eggs on a mini-scale the carbon footprint expands exponentially. But people don't have backyard chickens to reduce the impact we have on the earth – it gives them an enormous amount of pleasure. So to reduce the carbon footprint, we have to look at all the inputs: housing, equipment, bedding, feed and water. Recycling is always going to spare a few trees, so consider making your housing from scrap timber including old pallets, and rather than buying new feeders and drinkers just get some bowls from the charity shop. You can't skimp on feed, though – you can though grow leafy vegetables that chickens will relish, but don't feed kitchen scraps as this is illegal. Then there are the chickens themselves. Traditional breeds look great but eat stacks of feed, grow slowly and produce few eggs. Choose lay hybrid pullets which will be good for three years then, to be strict, you should put those in a stew and get some fresh ones in.

**Q:** What's the most environmentally friendly type of bedding?

**A:** The greenest bedding of all is dry soil

from your garden. Cover a patch with some polythene or old tin sheets, anything to keep the rain off, dig and break some up and use this instead of straw or wood shavings. Each week when you clean out you can throw it all on the compost heap. If you have a nearby farm that will sell you a bale of straw then this great for your nest boxes, you can use it liberally on the floor (while being aware that it may encourage your birds to lay on the floor). However if you have to drive miles to collect your straw this completely negates the benefits to the environment. Wood shaving are great as long as they are a by-product of the timber industry and not trees being chopped up just to produce shavings. But wood shavings are not as degradable as straw, and hardwood shavings can contain irritating tannins.

**Q:** Is there a withholding period for eggs after administering Fowl Cholera, Newcastle and Infectious Bronchitis vaccines?

**A:** It is only the Cholera vaccine that has a withdrawal period of six weeks, so should not be administered to laying birds. Saying that, Cholera is usually associated with poor hygiene, so if you keep things clean and provide fresh

drinking water, you are unlikely to see the disease. I for one have never seen it in 40 years of poultry keeping. If you are going to vaccinate, the vaccine will come with a comprehensive data sheet, explaining the process and any dangers associated with vaccination.

**Q:** I've heard that warmer climates mean there are more parasite risks to pets in Europe – should I be concerned for my poultry?

**A:** Because commercial poultry houses already operate at near tropical temperatures in this environment, mites thrive. Great clusters of red mite may be seen around perches and in any crevice they can get a purchase. For the backyard keeper it won't be so much higher temperatures, but a greater number of warm days that would increase parasite activity. One scenario is that the Gulf Stream may change course, bringing the UK into a cooler climate and therefore reducing parasite activity. One worrying aspect is that as bird migration patterns change or conditions become favourable for the movement of parasites across continents we are likely to see new strains and species of familiar and exotic parasites. Whether they are exoparasites such as mites and lice or endoparasites such as worms and coccidia, these new varieties may have greater resistance to our preventative measures. Parasites can also carry diseases, so there are concerns about Malaria, Zika and Schmallenberg, and although the latter two are not associated with poultry there may be others to worry about.

### Mike Colley

*Mike has had an interest in all things chicken since he first asked his mum on the school bus "what colour eggs do different coloured chickens lay?" aged five. Over the next 45 years Mike developed his knowledge of poultry: in his backyard, breeding, hatching, showing and selling chickens, as well as in the commercial poultry industry as an Area Manager and, latterly, a Research Manager.*



# EVENTS

Poultry events from around the globe

## Research on Avian Genetics and Immunity Symposium 2017

Date: 19 June

Location: Surrey, UK

The symposium will provide a forum for discussion and exchange of ideas around the single theme of exploiting available opportunities in ultimately dealing emerging and existing infectious avian diseases in poultry production systems and to safeguard food supplies and human health.

It is planned to address basic, applied and commercial aspects of research on avian genetics and immunology.

[www.geneticsandimmunity.com](http://www.geneticsandimmunity.com)

## 5th European Symposium on Poultry Welfare

Date: June 19-22

Location: Ploufragan, France

The congress covers welfare and genetics, welfare of breeders, transport and slaughter. Researchers, NGOs, academic and stakeholders bring the event to high level of exchange and collaboration. Brittany is the first area of poultry rearing in France with high diversity of production, and at the end of the symposium delegates will have the opportunity to tour local poultry and touristic sites.

[www.poultrywelfare2017.com](http://www.poultrywelfare2017.com)

## SIAVS - International Poultry and Pork Show

Date: 29-31 August

Location: Sau Paulo, Brazil

Held in São Paulo, this year's SIAVS exhibition aims to build on the previous exhibition in 2015 to provide a show area of over 10,000 square metres. The show is run by the Brazilian Association of Animal Protein (ABPA) and will bring together poultry and pork businesses, suppliers of genetics, equipment or other inputs and retailers among others.

[siavs.org.br](http://siavs.org.br)



EDINBURGH | WVPA XXth Congress 2017 is being held in Edinburgh, UK

## WVPA XXth Congress 2017

Date: 4-8 September

Location: Edinburgh, UK

The Congress attracts both poultry research scientists and practitioners, and will include leading speakers from across the world. It is expected that delegate numbers will be in excess of 1200 visiting Edinburgh from over 70 countries joining together to explore the past, share the present and helping to forge the future of poultry veterinary science.

[www.wvpac2017.com](http://www.wvpac2017.com)

## IEC Global Leadership Conference Bruges 2017

Date: 10-14 September

Location: Bruges, Belgium

The IEC Global Leadership Conference gathers CEOs and leaders from the IEC's 300 member companies. These companies represent 80 countries and all business areas of the egg industry. The IEC's mission is to bring together the most influential leaders in egg production and egg processing in pursuit of efficient business practices and positive change across the industry.

[www.internationalegg.com](http://www.internationalegg.com)

## 25th Latin American Poultry Congress (Avicultura 2017)

Date: 26-29 September

Location: Guadalajara, Mexico

The 25th Latin-American Poultry Farming Congress is an extraordinary Agriculture and Veterinary Congress at the Expo Guadalajara in Guadalajara, Mexico. The biennial Congress is the principal event of the Latin-American Poultry Farming Association.

[www.avicolatina.com](http://www.avicolatina.com)

## National Poultry Show 2017

Date: 2-3 December

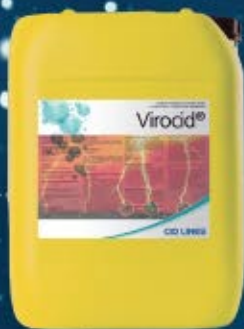
Location: Telford, UK

The National Show continues to grow year on year and again this year it will be held at The International Centre in Telford. A highlight of any fancier's calendar, here you will find nearly 7000 entries, 500 sales pens and everything you need for your poultry from many trade stands.

[www.farminguk.com](http://www.farminguk.com)

If you don't know **Virocid**<sup>®</sup>

you're probably not  
from ***around here...***



There are 15.780.000 every day users in farming, fishing, horticulture, foodprocessing, transports, storage and hospitals. **Virocid**<sup>®</sup> is used in more than 85 countries over all 6 continents and has proven strong results against bacteria, viruses, fungi and spores. Securing the bio-safety of animals, houses, materials, buildings, vehicles and people... one could safely say **Virocid**<sup>®</sup> n°1 disinfectant in the world!

**CID LINES**<sup>®</sup>

*Believe in hygiene!*

Waterpoortstraat 2 • 8900 Ieper - BELGIË  
T +32(0)57 21 78 77 • F +32(0)57 21 78 79  
info@cidlines.com • www.cidlines.com

Use biocides with precaution. Before any use, read the label and the information concerning the product. Not all CID LINES products are available in all countries. For information about availability please contact your CID LINES dealer