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## DIGITAL.

October 2014

Novel Protein Sources and  
Improved Starter Feed  
Formulation for Broilers

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Global Poultry Trends  
2014: Europe Expands Its  
Share of World Chicken  
Output

Updating the Nutrient  
Requirements of  
Poultry

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Trust, Biosecurity  
Underpin 30-Year-Old  
Thai Egg Business

# Welcome.Editors Note

ThePoultrySite  
Digital

October 2014



'Feeding and Nutrition' is the theme of this issue of *ThePoultrySite Digital*.

With feed making up the lion's share of the total costs of producing poultry meat and eggs, it is always a popular topic with farmers and there is plenty of research into ways of using feed more effectively.

Our first feature outlines work in Australia, which aimed at identifying ingredients and feed formulations that can improve the growth of broiler chicks. The results suggest that spray-dried porcine plasma offers potential as an alternative to antibiotics in the bird's feed.

Europe's share of global broiler meat production is forecast to rise to 17 per cent this year, according to industry analyst, Terry Evans, in his 'Global Poultry Trends' review. The trend is led by Russia and Ukraine; output growth has been modest in the European Union.

Returning to the main theme, two US poultry scientists explore the need for an update to the widely used publication, 'Nutrient Requirements of Poultry'.

And finally, Stuart Lumb reports on his recent visit to an egg company in Thailand, which take pride in its biosecurity procedures and trust with its business partners.

## Jackie Linden

Senior Editor

ThePoultrySite.com



**Jackie Linden**

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# Novel Protein Sources and Improved Starter Feed Formulation for Broilers

**Poultry CRC project leaders, Professor Bob Swick and Professor Paul Iji, at the University of New England have recently completed a research project aimed at identifying ingredients and feed formulations that can improve the growth of broiler chicks, post-hatch.**

As the production cycle of broilers has been reduced to such an extent that the starter phase represents more than a quarter of the cycle, poor feeding at this time can have a significant negative impact on the final weight of birds.

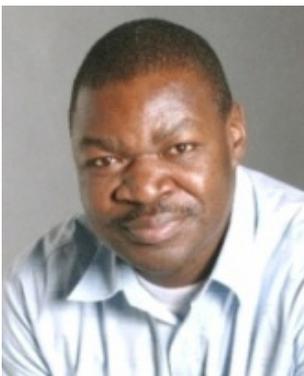
Poor feeding in the starter phase can be due to delayed access to feed and/or water, or

use of poor ingredients in formulating the starter diet. It is difficult to address the former although there are attempts being made at in-ovo feeding and in-shed hatching, to improve post-hatch growth.

However, the objective of this work was to identify ingredients and feed formulations that could improve growth of broiler chicks post-hatch.

Four experiments were conducted to identify suitable supplements that may be used in developing starter diets for broilers.

Three of the experiments were focused on identifying supplements that would enhance



**Professor Paul Iji**

the nutritive value of pre-starter diets, to maximise the response of chicks placed on such diets. An animal protein supplement, spray-dried porcine plasma (SDPP), and a plant protein product, HP AviStart (HPA, a fermented soy concentrate), were investigated.

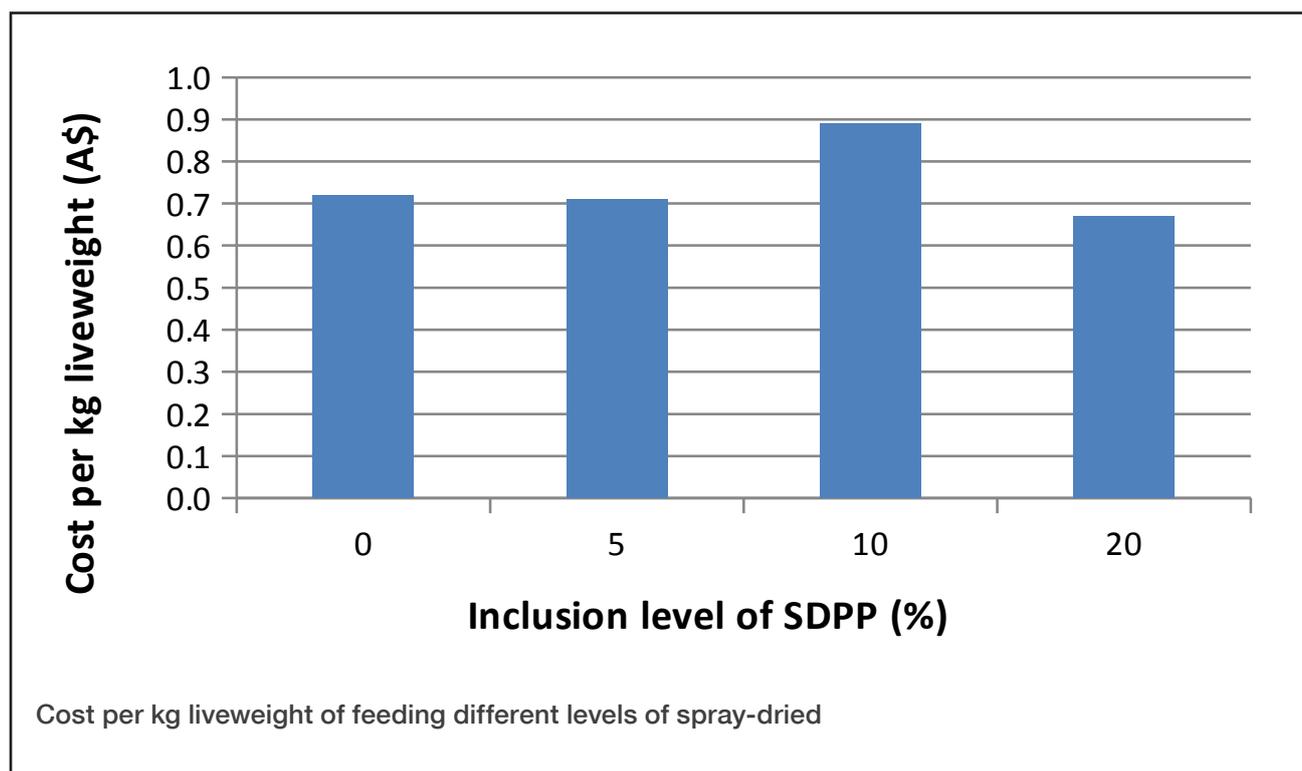
The fourth experiment examined the potential of a complex dietary formulation that would enable the chicks to derive complementary

benefits from SDPP and Soycomil® (SPC), a food grade soy protein concentrate (non-fermented) and 10 per cent additional digestible amino acids.

In all experiments, the diets containing the supplements were fed for 10 days, after which the chicks were transferred to regular grower and finisher diets. Experiments 1, 2 and 3 had no in-feed antibiotic added, whereas Experiment 4 used a commercial dose of zinc bacitracin.

Results demonstrated that SDPP improved both liveweight gain and feed conversion ratio during the starter, grower and finisher periods. Notably, it could also be fed over

## Porcine Plasma (SDPP) to Broilers to 35 Days of Age



five days rather than 10 days with similar outcomes, thereby reducing cost.

In general, SDPP improved feed costs per unit weight gain, and could be fed in wheat- or maize-based diets.

Feeding SDPP resulted in a reduction in feed costs per unit final liveweight. The costs of feed per kg liveweight at 35 days were \$0.72, \$0.71, \$0.89 and \$0.67 with diets containing 0, 5, 10 and 20g SDPP per kg, respectively.

Cost per kg liveweight of feeding different levels of spray-dried porcine plasma (SDPP) to broilers to 35 days of age

HPA improved weight gain and feed conversion ratio but was less effective in wheat- than maize-based diets.

Additional digestible amino acids improved performance in the fourth experiment but SDPP or SPC had no positive impact on

performance. This suggests that SDPP may be a potential alternative to antibiotics.

Further work is necessary to compare zinc bacitracin and SDPP in the same experiment, Professors Swick and Iji suggest.

The fact that soy protein as HPA improved growth while SPC did not may be related to the fermentation residues present in HPA, they hypothesised. It would be of interest to compare both sources in a single study.

The results of this project suggest that it is possible to improve growth and FCR if starter diets are supplemented with SDPP. HPA produced a similar effect.

The authors conclude that these products would require further testing, particularly on litter - all but the fourth experiment were conducted in cages - in order to fully recommend them to industry. ■



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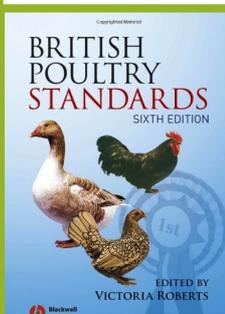
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# Global Poultry Trends 2014: Europe Expands Its Share of World Chicken Output

Europe's share of global broiler meat production is forecast to rise to 17 per cent this year. Industry analyst, Terry Evans, continues his review of the world chicken meat industry with a look at production trends in Europe, an area that includes Russia and Ukraine as well as the European Union.

Chicken meat production in Europe over the period 2000 to 2012 grew by some 4.3 per cent per year compared with the global average of 3.9 per cent. Hence, Europe's contribution to world output increased from 15.9 per cent to 16.6 per cent and could exceed 17 per cent in 2014.

The number of table birds plus culled layers birds slaughtered in Europe climbed by 2,904 million (42 per cent) from 6,881 million to 9,785 million, according to the Food and Agriculture Organisation (FAO).

However, while those killed in the European Union increased by just 759 million (13 per cent) from 5,979 million to 6,738 million, the rise in the non-EU European countries was a massive 2,145 million (238 per cent) from 902 million to 3,047 million!

The average eviscerated weight per bird went up from 1.35kg in 2000 to 1.58kg in 2012.

Table 1. Chicken meat production (million tonnes)

Region	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013E	2014F
<b>Indigenous chicken meat production*</b>											
Africa	2.8	3.3	3.4	3.7	4.0	4.2	4.5	4.6	4.6	4.7	4.7
Americas	27.1	32.7	33.7	35.0	37.5	36.9	38.6	39.8	40.1	40.6	41.3
Asia	18.6	22.4	23.5	25.0	26.2	28.0	29.2	29.9	31.4	31.8	32.1
Europe	9.3	10.9	10.8	11.6	12.1	13.3	13.9	14.6	15.4	15.9	16.5
Oceania	0.7	0.9	1.0	1.0	1.0	1.0	1.1	1.2	1.2	1.2	1.2
<b>WORLD</b>	<b>58.5</b>	<b>70.2</b>	<b>72.3</b>	<b>76.2</b>	<b>80.7</b>	<b>83.4</b>	<b>87.3</b>	<b>90.1</b>	<b>92.7</b>	<b>94.2</b>	<b>95.8</b>
<b>Broiler meat production (million tonnes)</b>											
<b>WORLD</b>	<b>50.1</b>	<b>63.1</b>	<b>64.3</b>	<b>68.3</b>	<b>72.8</b>	<b>73.6</b>	<b>78.2</b>	<b>81.2</b>	<b>83.2</b>	<b>84.1</b>	<b>85.3</b>

\*Meat from the slaughter of birds originating in a particular country, plus the meat equivalent of any such birds exported live.

E=2013 and F=2014: 5m estimates and forecasts for chicken meat.

F=2014 USDA forecast for broiler meat.

Regional figures may not add up to the world totals due to rounding.

Chicken meat output in Europe, rose by 6.1 million tonnes (66 per cent) between 2000 and 2012 from 9.3 million tonnes to 15.4 million tonnes, while the world total went up by more than 34 million tonnes (59 per cent) from 58.5 million tonnes to 92.7 million tonnes (Table 1). Forecasts to 2014 envisage European output rising to around 16.5 million tonnes against 95.8 million tonnes for the global total.

Drawing comparisons between the series data on poultry production are difficult because the figures can relate to poultry meat, chickens (table birds plus culled layers) or broilers. However, while the absolute levels differ somewhat, they tend to exhibit similar trends.

During the period 2000 to 2012, the production of poultry meat, according to the FAO, rose by more than 37 million tonnes at 3.7 per cent per year. For 2012, global chicken meat output was put at a little under 93 million tonnes, with turkey meat at 5.6 million tonnes, ducks at almost 4.5 million tonnes and goose meat 2.8 million tonnes, making a poultry meat total of 105.5 million tonnes. FAO's *Food Outlook* report forecasts that poultry meat output could reach 108.7 million tonnes in 2014.

An Organisation for Economic Co-operation and Development (OECD) report suggests that global poultry meat production will expand by around 2.3 per cent per year between 2013 and 2023 to reach 134.5 million tonnes in the latter year, with poultry becoming the largest meat sector from 2020 on.

United States Department of Agriculture

(USDA) economists monitor broiler meat output, which at 83.2 million tonnes in 2012, represented almost 90 per cent of chicken meat output or some 79 per cent of all poultry meat. For 2013 and 2014, global broiler output is assessed at 84.1 and 85.3 million tonnes, respectively.

Indigenous poultry meat production – defined as the eviscerated weight from the slaughter of birds originating in a particular country plus the meat equivalent of any such birds exported live – in Europe grew from 11.8 million tonnes in 2000 to 17.9 million tonnes in 2012. While chicken meat output rose from 9.3 to 15.5 million tonnes, turkey production slipped a shade from 2.0 million to 1.9 million tonnes. Duck production grew from 404,000 to 509,000 tonnes but goose

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**Table 2. Indigenous chicken meat production in Europe ('000 tonnes eviscerated weight)**

<b>Country</b>	<b>2000</b>	<b>2005</b>	<b>2008</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>
Albania	2.6	6.9	11.9	10.5	11.2	11.9	11.1
Austria	83.5	82.7	82.0	98.2	104.4	111.8	108.0
Belarus	76.1	89.5	170.1	203.1	243.2	279.8	300.8
Belgium	315.3	313.0	334.6	345.3	362.2	362.2	362.2
Bosnia/Herzegovina	3.6	8.4	35.1	31.1	36.5	44.0	51.2
Bulgaria	104.4	75.8	104.4	128.9	111.0	107.0	111.9
Croatia	23.9	30.3	30.7	30.3	23.2	29.5	28.7
Czech Rep.	230.0	230.0	280.8	291.1	286.9	275.4	259.8
Denmark	187.0	182.0	176.0	168.0	186.0	186.2	177.0
Estonia	7.6	12.8	12.4	14.2	14.2	14.8	13.8
Finland	65.4	87.6	103.8	97.4	89.6	95.3	101.0
France	1,273.0	1,165.0	1,140.0	1,113.8	1,160.0	1,160.0	1,178.6
Germany	586.9	710.0	794.8	865.3	929.0	1,004.0	1,015.7
Greece	107.9	162.1	104.0	103.0	103.6	99.4	92.7
Hungary	281.8	270.2	277.8	268.5	268.7	272.0	290.5
Iceland	3.1	5.8	7.4	7.2	6.9	7.2	7.8
Ireland	84.0	91.0	75.7	88.8	103.4	109.7	110.7
Italy	761.8	695.0	790.3	822.3	865.0	889.0	938.6
Latvia	4.9	15.2	22.9	20.7	22.1	22.9	24.6
Lithuania	25.1	55.8	70.2	69.5	75.5	74.6	79.2
Macedonia Rep.	3.9	3.0	2.2	2.4	3.6	3.0	3.3
Malta	6.0	4.4	5.0	4.6	4.3	4.1	4.2
Moldova	14.3	24.4	21.6	21.5	33.7	36.7	34.1
Netherlands	631.0	712.2	716.3	927.0	877.8	906.3	953.8
Norway	43.0	49.8	74.7	71.2	75.9	75.1	81.0
Poland	531.1	799.8	740.8	1,086.4	1,115.1	1,165.0	1,414.3
Portugal	221.3	213.9	269.8	288.6	309.5	284.0	284.0
Romania	251.1	274.9	270.5	302.3	278.9	254.8	275.9
Russian Federation	752.2	1,326.7	1,990.6	2,304.7	2,548.9	2,875.3	3,279.0
Serbia	-	-	75.1	79.3	85.4	95.9	87.4
Slovakia	16.0	78.4	93.1	83.8	78.9	65.5	67.6
Slovenia	17.7	45.3	46.4	47.1	45.9	47.1	49.2
Spain	983.5	1,060.6	1,034.4	1,120.2	1,029.0	1,158.7	1,092.8
Sweden	91.3	99.9	110.4	109.1	115.0	113.9	112.1
Switzerland	39.0	52.7	61.3	62.9	66.8	71.1	74.4
Ukraine	190.0	463.0	685.1	766.0	859.8	880.1	961.0
United Kingdom	1,222.0	1,315.0	1,292.8	1,292.2	1,402.7	1,368.9	1,396.8
<b>EUROPEAN UNION</b>	<b>8,144.9</b>	<b>8,815.5</b>	<b>9,007.7</b>	<b>9,813.5</b>	<b>9,988.8</b>	<b>10,208.3</b>	<b>10,567.2</b>
<b>EUROPE</b>	<b>9,308.2</b>	<b>10,878.8</b>	<b>12,116.7</b>	<b>13,348.5</b>	<b>13,935.9</b>	<b>14,564.0</b>	<b>15,435.7</b>

- no figure, Source: FAO

meat declined from 79,000 tonnes to 60,000 tonnes.

For the European Union (EU), the corresponding changes were: chicken from 8.2 to 10.6 million tonnes, turkey 2.0 to 1.9 million tonnes, ducks, 401,000 to 507,000 tonnes and goose meat 71,000 to 60,000 tonnes.

While chicken production in Europe expanded by some 6.1 million tonnes in the review period, just 2.5 million tonnes (41 per cent) of the extra came from EU member countries recording an annual growth rate of a little over two per cent.

In contrast, output in non-EU European countries rocketed by almost 13 per cent per year from less than 1.2 million tonnes to nearly 4.9 million tonnes.

The individual country data for chicken production is presented in Table 2.

Russian Federation clearly heads the production rankings (Table 3) with an output in 2012 of almost 3.3 million tonnes.

Five other countries – Poland, the UK, France, Spain and Germany – produced more than one million tonnes, while a further three – the Ukraine, the Netherlands and Italy – had outputs of between 900,000 and a million tonnes.

The combined production of these nine countries amounted to 12.2 million tonnes or almost 80 per cent of the regional total.

Table 4 and Figure 1 show how AVEC (Association of Poultry Processors and Poultry Trade in the EU) and the USDA

<b>Table 3. Chicken meat production ranking in Europe in 2012 ('000 tonnes)</b>	
<b>Country</b>	<b>Production</b>
Russian Federation	3,279.0
Poland	1,414.3
United Kingdom	1,396.8
France	1,178.6
Spain	1,092.8
Germany	1,015.7
Ukraine	961.0
Netherlands	953.8
Italy	938.6
Belgium	362.2
Belarus	300.8
Hungary	290.5
Portugal	284.0
Romania	275.9
Czech Rep.	259.8
Denmark	177.0
Sweden	112.1
Bulgaria	111.9
Ireland	110.7
Austria	108.0
Finland	101.0
Greece	92.7
Serbia	87.4
Norway	81.0
Lithuania	79.2
Switzerland	74.4
Slovakia	67.6
Bosnia/Herzegovina	51.2
Slovenia	49.2
Moldova	34.1
Croatia	28.7
Latvia	24.6
Estonia	13.8
Albania	11.1
Iceland	7.8
Malta	4.2
Macedonia Rep.	3.3

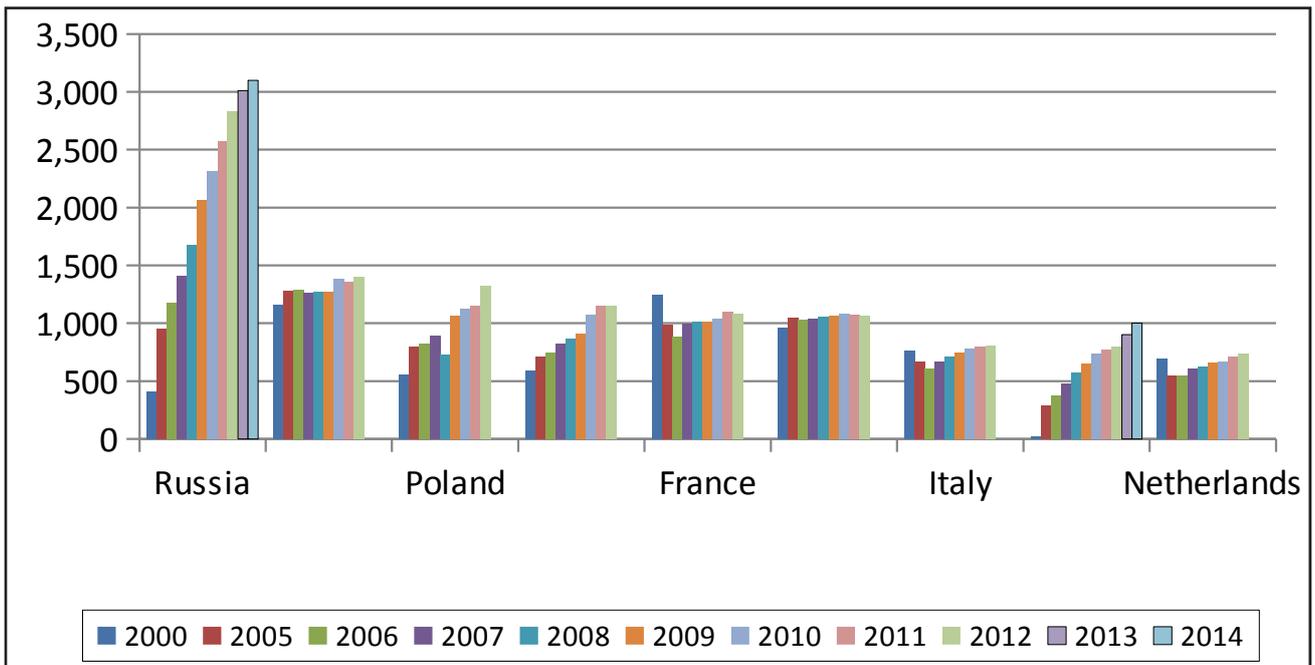
Source: FAO

**Table 4. Leading broiler producers in Europe ('000 tonnes)**

Country	2000	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Russian Federation	410	950	1,180	1,410	1,680	2,060	2,310	2,575	2,830	3,010	3,100
United Kingdom	1,163	1,283	1,290	1,261	1,267	1,269	1,380	1,354	1,400	-	-
Poland	560	800	824	896	730	1,060	1,123	1,150	1,325	-	-
Germany	587	710	749	826	868	911	1,073	1,150	1,150	-	-
France	1,242	986	886	993	1,009	1,008	1,041	1,096	1,080	-	-
Spain	965	1,045	1,030	1,034	1,059	1,063	1,085	1,073	1,063	-	-
Italy	762	666	612	670	713	742	780	796	808	-	-
Ukraine	20	289	372	475	570	650	733	767	800	900	1,000
Netherlands	697	552	547	612	626	655	664	710	738	-	-
EU-27	7,970	8,169	7,740	8,492	8,526	8,949	9,478	9,639	9,914	9,800	9,950

- no figure  
Sources: AVEC, USDA

**Figure 1. Leading broiler meat producers in Europe ('000 tonnes)**



view broiler production in key countries in Europe. Growth has been most dramatic in the Russian Federation and the Ukraine.

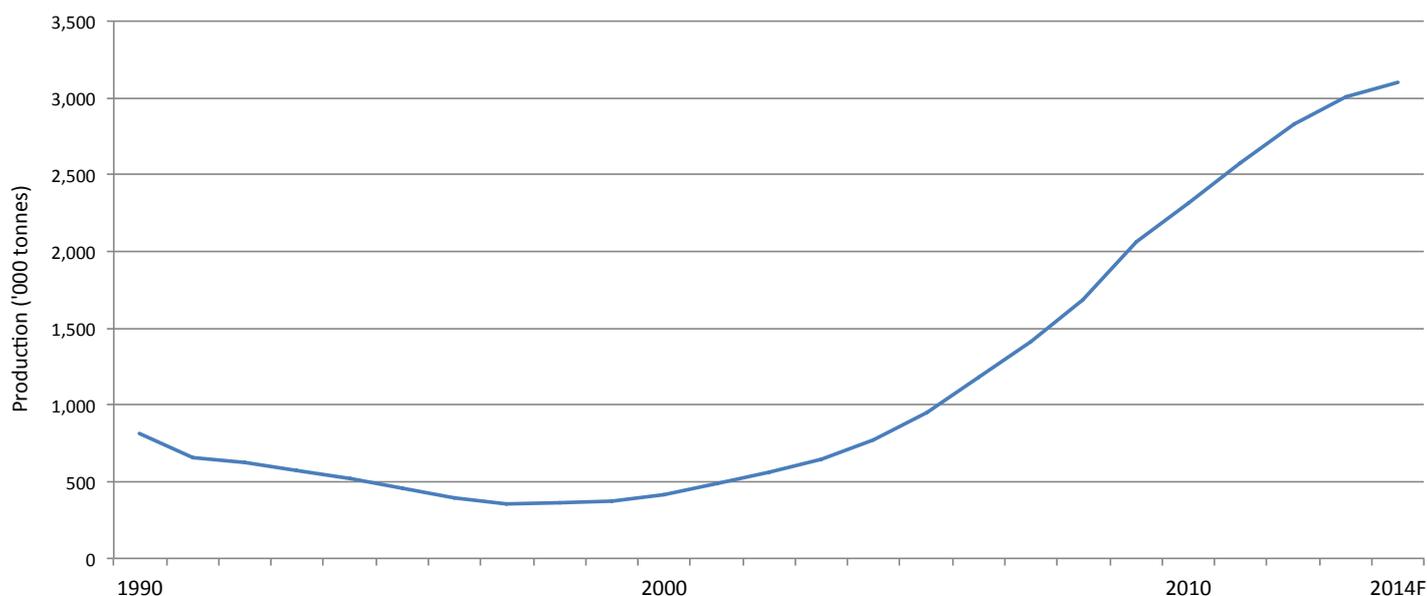
Figures 2 and 3 reveal the production trends since 1990 in these two countries. In both Russia and Ukraine, output actually contracted during the first 10 years. Between 2000 and the estimates for 2014, however, it

escalated sharply with Russia recording an average 15.5 per cent per year rise, while for Ukraine, the increase has been a massive 32 per cent per year.

That the Russia Federation has recently imposed a ban on agricultural and fishery imports from the US, the EU, Canada, Australia and Norway might give domestic



**Figure 1. Leading broiler meat producers in Europe ('000 tonnes)**



production a small boost but it is possible that the deficit created by the bans could be offset by increased imports from other countries, particularly Brazil and Argentina.

The quantities purchased from other European countries are not particularly large hence the ban is not likely to impact severely on their production.

Of note is that Russia's poultry meat imports have halved since 2009 to around 500,000 tonnes.

Broiler output from the United Kingdom, at 1.4 million tonnes in 2012, shows a gain of 1.6 per cent per year.

Close behind comes Poland although its industry has expanded much faster at almost 7.5 per cent per year.

The chicken sector in Germany has also chalked up good growth of close to six per cent per year since 2000. Although output in France has increased in recent years, the total in 2012 was still some 13 per cent short of the 2000 level.

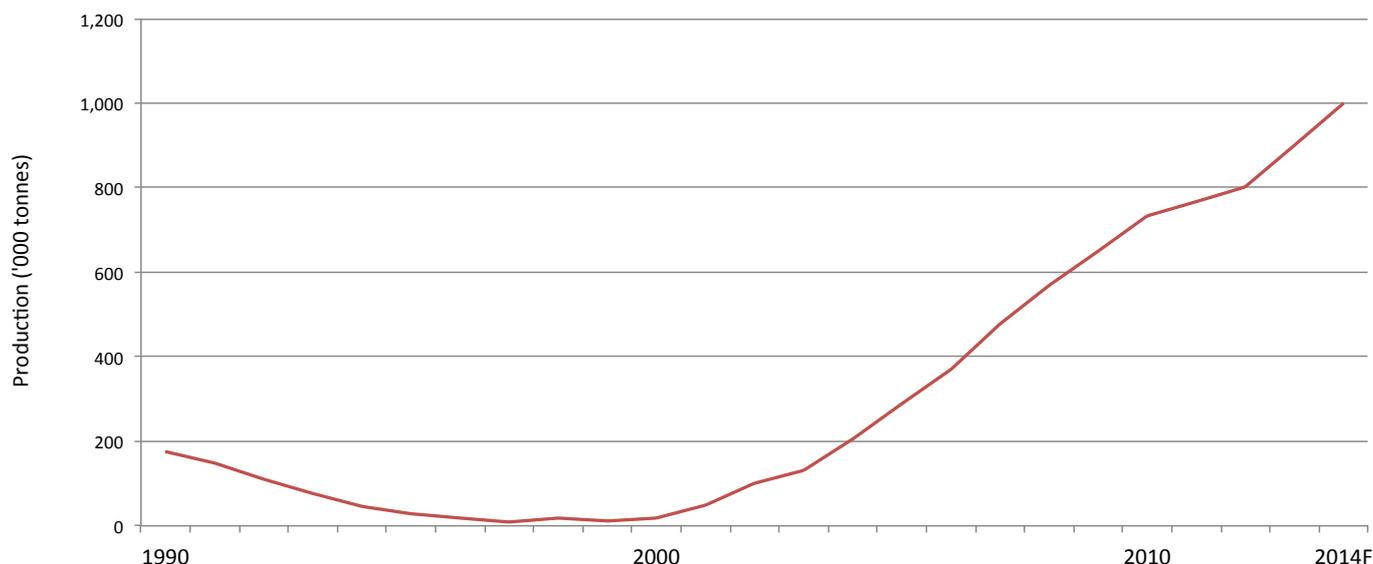
"Of note is that Russia's poultry meat imports have halved since 2009 to around 500,000 tonnes."

The European Commission anticipates growth of little more than one per cent per year in EU poultry meat output between the 2012 figure of 12.7 million tonnes and its estimate for 2015 of a little over 13 million tonnes.

However, the FAO's poultry meat figure for 2012 is already around 13.1 million tonnes. Based on the FAO data, which indicated that chicken meat output in the EU amounted to 10.6 million tonnes in 2012, it looks as though the 2015 figure will be about 11 million tonnes.

A report by Dr Peter L.M. van Horne of the Agricultural Economics Research Institute at Wageningen in the Netherlands on the competitiveness of the EU poultry meat sector has highlighted the higher production costs incurred by EU producers from having to comply with European legislation related

**Figure 3. Broiler production in Ukraine has boomed since 2000**



to environment protection, animal welfare and food safety.

In addition the reports states: “At the same time, the EU is negotiating with other countries or groups of countries to liberalise trade in agricultural products.”

The net result of these two negative factors on EU production could well be increased imports into the EU from third countries in general and non-EU European countries such as Ukraine in particular.

Regarding Brazil, Dr van Horne notes that this country has no legislation for poultry on animal welfare at the farm level or during transport.

On the optimistic side, the report highlights ways in which the EU industry can develop new markets in the retail and catering sectors for speciality birds (free-range, organic) and added-value products which could give chicken production a boost.

Looking further ahead, the European

Commission foresees an expansion in poultry meat production of less than 0.8 per cent per year to 2023 as EU output climbs to 13.6 million tonnes. For Europe as a whole, the 2023 figure could well be in the region of 23 million tonnes. ■



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# Updating the Nutrient Requirements of Poultry

**Two US poultry scientists explore the need for an update to the widely used publication, 'Nutrient Requirements of Poultry'.**

The US National Research Council (NRC) 'Nutrient Requirements of Poultry' has been a benchmark publication for the research, judicial and regulatory communities domestically and abroad since the first published edition in 1944, according to Todd J. Applegate of Purdue University and Roselina Angel of the University of Maryland.

The poultry scientific community has looked to this publication for benchmark diet formulation, as they explain in a paper in the current issue of the Journal of Applied Poultry Research.

Furthermore, they write: "NRC publications have become a valuable reference for regulatory agencies, both domestically and internationally, as they offer comprehensive evaluations of credible and generally accepted science (for the most part based on published peer-reviewed information) that was current at the time of publication."

The latest version of the 'Nutrient Requirements of Poultry', the ninth, was published by the US National Research Council (NRC) in 1994 – some 20 years ago.

There have been extraordinary developments in the growth and productive potential of modern poultry strains since then. Combined with changes in body composition and egg output, it is highly likely that nutrient needs have changed beyond what the bird can compensate for with increasing intake per unit of bodyweight, the authors suggest.

Applegate and Angel go on to identify a number of other changes in the poultry industry since 1994 including bird genotype; feed ingredient composition; increased use of co-products such as distillers dried grains with solubles (DDGS); enzyme supplementation and quantification of different nutrient and energy digestibility coefficients in growing birds.

Research publications used for amino acid and phosphorus recommendations in that last NRC are now, at best, from 1991 and at worst from 1947, the researchers say.

For amino acids, Applegate and Angel report that some recent publications have challenged the NRC recommendations as being inadequate for broilers, while formulations for laying hens are generally over-formulated in crude protein and amino acids compared with the 1994 NRC requirements.

Previously, the authors have detailed the large amount of research in broilers and laying hens to define phosphorus needs since the 1994 edition, which relied on publications from the 1980s.

Phosphorus is commonly fed commercially at levels well above the requirements, a

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situation which Applegate and Angel attribute to a lack of information on requirements, digestible phosphorus content in feed ingredients and their variability.

The authors also highlight that phosphorus nomenclature between the eighth and ninth editions of the NRC poultry requirements caused some confusion.

'Available phosphorus' used in the earlier edition published in 1984 was replaced by 'non-phytate phosphorus' in the 1994 publication without any substantial change in the values.

These terms, as Applegate and Angel point out, are not synonymous, the first being a biological term and the latter determined chemically.

To the credit of the poultry science community, substantial amounts of data have been published in those areas to warrant an update to the ninth revised edition of the 'Nutrient Requirements of Poultry', the authors suggest.

Over time, the perception and definition of a nutrient requirement has changed from being a requirement – as a percentage of

"...the scientific community has begun to embrace the concept of return on investment of nutrient used for compositional growth or egg production."

the diet – to preventing a nutrient deficiency, to now being a requirement to optimise growth or egg production response per unit of nutrient intake.

As economics becomes an increasingly more important driver for the implications of research, the scientific community has begun to embrace the concept of return on

investment of nutrient used for compositional growth or egg production.

As these concepts take shape, Applegate and Angel write that the current edition's format will have to undergo a substantial creative revision; possibly even embracing the concept of modeling of nutrient responses.

Funding for such a revision will require a large financial investment from the NRC, the feed industry, commodity associations, as well as time investment by the scientific community, the authors added.

They conclude that the first challenge is to find a consensus among the poultry industry and its scientists that a new NRC guideline for poultry is needed. ■

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# Trust, Biosecurity Underpin 30-Year-Old Thai Egg Business

**Visitors to the C&C Eggland Company located in Korjan in the Chonburi province of Thailand, cannot fail to be impressed by the level of biosecurity that the company insists upon, reports Stuart Lumb.**

The farm is completely surrounded by a large fence and visitors on arrival have to walk through a spray race, after which they are then sprayed all over with disinfectant by a member of the farm staff.

The “C&C” in the company name, in fact, refers to two generations of the Intanurangsi family and an egg motif features prominently in the company logo. The layer business was set up in 1984 although the family was trading eggs before that.

The farm buildings are spaced well apart and recently a new facility has been built. This facility houses the office staff and a large seminar room which is used to entertain



visitors and doubles as a staff training facility. Layers were originally housed in traditional open buildings. Then, in 1997, the business invested in closed buildings which were imported from Spain as a turn-key package with Spanish specialists overseeing the erection and commissioning of the new layer accommodation.

Ten years later, in 2007, equipment was purchased from Big Dutchman and more recently, more has been imported from Italian company, Valli S.p.A.

The houses have four tiers of cages accommodating 42,000 birds, with each bird having a space allowance of 450 square centimetres. This number of layers is considered the ideal number that one member of the farm staff can satisfactorily look after. There are 100 staff working in teams, on the farm.

Training is provided in-house. The farm staff all live in company accommodation on the facility, a situation commonly found in Asia.

Consequently, no travelling is involved for the farm staff plus having them all living on site is a big bonus as far as biosecurity is concerned.

Seedstock used to be sourced from Apex but Hy-Line is now preferred. Members of the family travelled to Des Moines in Iowa, US to meet up with the Hyline management staff.



Layers are housed in closed buildings

Egglard was impressed with the company, which explains the change in genetics.

Corn is the major energy source as far as feed is concerned, with feed being stored in a number of glassfibre bins. Interestingly, no extra vitamin A is added to the feed as yolk colour is something that is not a concern for Thai consumers.

An adequate water supply is always a major priority in hot climates. Often farms have their own bore-holes providing water but Egglard relies on rainwater, which is collected in a large reservoir. Water quality is checked monthly for E. coli and Salmonella.

The farm naturally produces a considerable amount of manure. Interestingly this is not used as a fertiliser but is sold to fish farmers who use the manure to inoculate their ponds when starting up tilapia production. The



Biosecurity is taken seriously at Egglard with secure boundaries and a vehicle wash

“Interestingly, no extra vitamin A is added to the feed as yolk colour is something that is not a concern for Thai consumers.”



**Eggs are packed in open trays in this packing area**

manure – a natural fertiliser – stimulates the growth of phytoplankton which is a source of feed for the tilapia.

Far-sighted farmers some years ago took their business “beyond the farm gate”, to take the middleman’s profit in order to ensure that their business remained viable,

this being the reason for the establishment of farmer’s markets in the UK, for example.

However, Eggland have always traded eggs and so is a totally integrated business, not just producing the eggs but also selling them directly to the consumer.

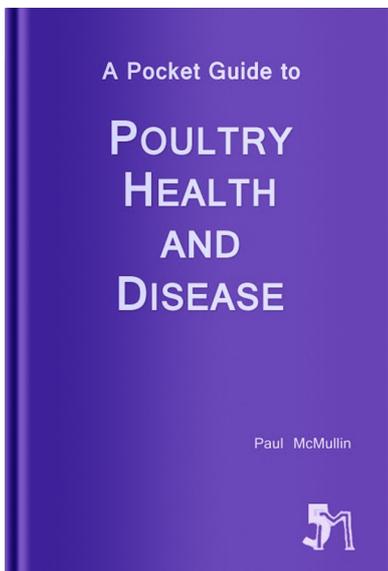
Overall production averages around 300,000 per day and the eggs, which are graded into seven categories, are transported in trays.

Eggs are not packaged as Eggland does not sell to the supermarkets. Eggs are shipped as far as 700km from the farm to a network of traders and shops in a sales operation that is based on trust and has been built up over many years. ■



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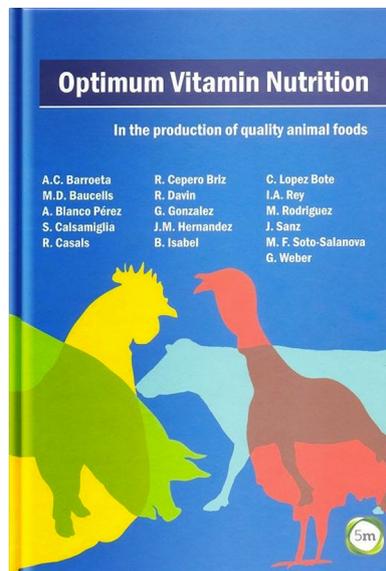
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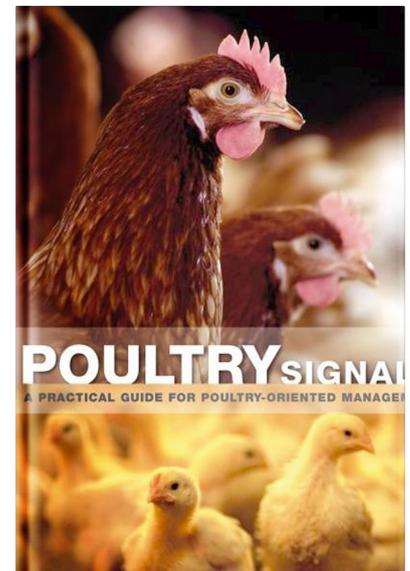
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## October.Industry News



### Salmonella: Reducing Pre-harvest Prevalence and Load

US - Reducing the prevalence and/or load of the pathogen in poultry flocks prior to processing helps to control salmonellosis, says Diamond V.

Although it can be found in the environment and many other food sources, Salmonella in poultry remains a significant cause of human illness and death. An important way to help control salmonellosis is to reduce the prevalence and/or load of the pathogen in poultry flocks prior to processing.

A growing body of research has shown that feeding Diamond V Original XPC™ can significantly reduce the pre-harvest prevalence and load of Salmonella in poultry. Diamond V researchers Drs Don McIntyre and Stephanie Frankenbach wanted to know whether feeding Original XPC throughout an

84-day turkey hen grow-out period would be effective in reducing Salmonella shedding and colonisation in birds challenged with different serovars at two ages (Day 1 and Day 56).

Very young turkeys were inoculated with a serovar associated with early contamination of live birds (Salmonella Typhimurium). Birds in the same group were inoculated when older with a serovar associated with recent human illness outbreaks (S. Heidelberg).

The researchers found that feeding Original XPC to turkey hens from hatch to market age was an effective pre-harvest intervention for Salmonella, significantly reducing numbers of bacteria in the ceca of highly challenged birds.

Also, feeding Original XPC reduced “outlier birds” with high numbers of Salmonella compared to control birds. This result may

be particularly important to the processing plant, where outlier birds can overwhelm the chemical controls in place and add risks such as:

- whole birds or parts with high Salmonella numbers reaching the consumer, and
- allowing highly infected carcasses to cross-contaminate other product in the plant.

For more on Diamond V poultry research, visit [www.diamondv.com](http://www.diamondv.com).

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## Air Mixing Reduces Stratification in Poultry Houses

ITALY - Effective air mixing is a practical and efficient means to disrupt air stratification, according to Termotecnica Pericoli.

Termotecnica Pericoli is always striving for the most practical and cost-efficient solution to the many challenges in production facilities. Air stratification can not only be costly in wasted and ineffective utilization of energy, a costly resource but can also be very detrimental to production. The compact and lightweight ACF range of circulation fans certainly meets those criteria.

Although lightweight and compact they are robust and reliable in either a stainless steel or galvanised housing depending on the nature of the environment or application, also with the same choice of propeller materials.

The three-phase models (36", 30" and 25") have high displacement propellers which are both high performance and efficient.

The two single-phase models (22" and 18") have blades designed for low noise while still being efficient and are simple and easy to install with 'Plug and Play' connections, which are IP55 protected with thermal overload protection.



All five models have as standard features:

- doubly safety guards
- suspension eye bolts – included for ease of installation.

The innovative design and engineering has produced a circulation fan with an extended throw which can also be combined with the RWA water atomiser to create a very effective air mixing, cooling and or humidification system which is very cost effective, easy to install, operate and maintain.

All Pericoli fans performance specifications are Bess Lab certified inclusive of all the safety options.

For more information on Pericoli fans, visit [www.pericoli.com/inglese/index.html](http://www.pericoli.com/inglese/index.html).

## Are You Within Your Recommended Drinking Guidelines?

UK - Provision of adequate drinker space with easy accessibility for all birds is essential to aid optimum health and growth, according to Aviagen.

Birds should have access to clean, fresh, good quality drinking water at all times.

Water consumption varies with feed consumption and with both environmental and water temperature.

Monitoring the ratio of water to feed intake is good management practice; changes in water consumption are an early indication of health and performance issues.

Water consumption should be measured daily using a water meter.

As a guide, water to feed intake ratio should be between 1.6:1 to 1.8:1, depending on drinker type.

Adequate water storage must be provided on the farm in case of failure of the mains supply. Ideally, sufficient storage to provide 24 hours water at maximum consumption is required.

Complete water to feed ratios and water temperature guidelines can be found in the Aviagen® Broiler Handbook.

Drinker heights must be adjusted daily with bird age. For nipples, birds should be reaching for but not stretching or straining to reach the nipple. Bell drinkers should be adjusted so that each drinker is level with



the top of the breast by 18 days of age.

Provision of adequate drinking space for the number of birds must be assured (full guidelines can be found in the Aviagen® Broiler Handbook) and routine testing of water quality completed.

Next time you pause for refreshment, think “Am I within the drinking guidelines?”

---

## Radox Tests Guarantee Food Safety

GLOBAL - Think back over the last 60 minutes. What did you do? Radox Food Diagnostics probably guaranteed the safety of beef in Brazil, Chinese pork and honey in Ukraine, to name only a few.

That is because every hour of every day, 96 Randox Food Diagnostics tests protect consumers and the food they eat.

The company develops and manufactures technology and products for drug residue screening and quality analysis. Tried and tested immunoassay techniques form the basis of its products servicing the meat & seafood, dairy and honey industries detecting drug residues such as antimicrobials, anthelmintics and growth promoter families. It covers all the major antibiotic families including sulphonamides, quinolones, tetracyclines & nitrofurans, and it has recently entered the mycotoxins market.

Randox Food Diagnostics' growing list of products are trusted by some of the world's most recognisable companies and increasingly government and regulatory labs are adopting our Biochip Array Technology as a screening tool.

Developed through a decade of research and an investment of UK£200 million, Biochip Array Technology detects up to 22 different analytes from a single sample, adding huge potential for savings via time and cost.

The company's ELISA kits offer excellent performance in terms of fast sample turn-around, minimal sample preparation, extended shelf-life, precision for both Inter and Intra precision up to 15 per cent and low limits of detection.

With controls on food safety becoming ever more complex, having the right technology is key. That is why over the next 60 minutes, the company's products might protect seafood in Viet Nam, screen honey in India or test milk in China.

The challenge is global, and with 96 tests used every hour – and so is Randox Food Diagnostics.

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## Indian Poultry Industry on a Growth Path

INDIA - The outlook for the growth of the Indian broiler and egg sectors should be good for at least another year, writes Dr Kotaiah of Indbro Research and Breeding Farms Private Limited.

Indian broiler production at 3.8 million tons is the fourth largest in the world after US, Brazil and China. The growth is continuing at 12 to 15 per cent. Contact farming with small farmers spread all over the place is a healthy growth involving millions of small landowners.

The broiler growing companies are becoming bigger and the feed mills are getting larger. More than 60 per cent of the feed is being processed unlike in the past.

The marketing continues to be "live birds" with no signs of improvement towards processed chicken. Processed food vendors like KFC, Mcdonald, Godrej, C.P., Venkeys and Amrit are growing but slowly.

The layer farming with 220 million layers is growing at six to eight per cent and the egg prices are record high at this part of the year

compared to any previous years at the same time.

The egg promotion agencies are doing a good job in promoting eggs in schools, hospitals etc. besides growing household consumption.

The news of good soybean and maize crops in the US is good for India because most of the global buyers will turn to US and India's small surplus stocks will be safe for local consumption.

The price line also will be low in the trading in accordance with the international market.

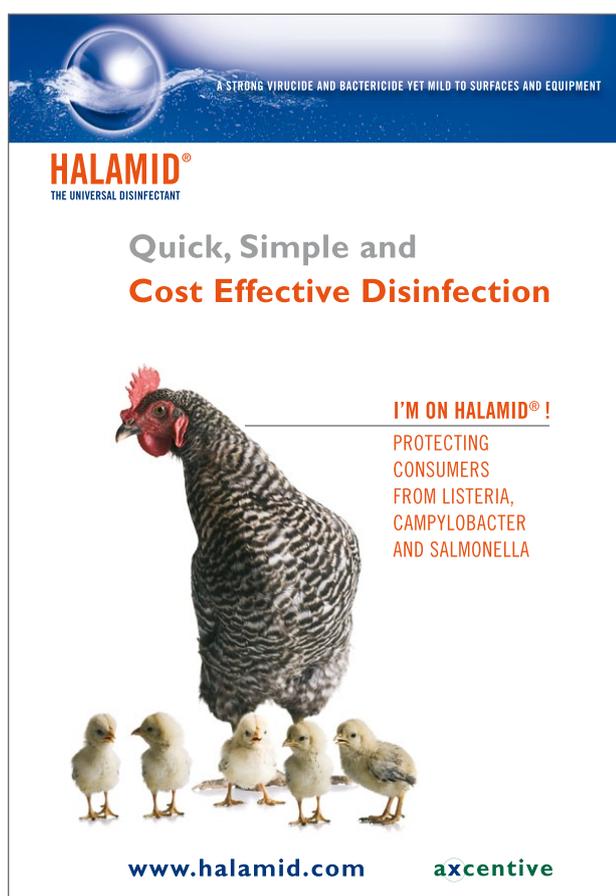
The purchases for 15 October 2014 are already trading 20 per cent lower than what they were in the beginning of September.

The new corn crop due to come in October

2014 is not that bright this year in yield due to late monsoon but the plantation area had grown because of higher corn prices realized by the grower last year. As a result, corn prices on the stocks available are also looking downward.

Individual poultry producers are growing big and the concerns on health of chickens and humans are well addressed. The food handling and processing regulations, which are being grounded fast, should take the industry fast in to the growth.

With soybean and corn favourably priced and consumption going up steadily, the outlook for the growth of the Indian poultry industry should be good for at least another year.



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## ORKA Seeks Resellers and Distributors in South America

SOUTH AMERICA - ORKA is looking for resellers and/or distributors in South America, especially Mexico, Peru and Chile.

Instruments manufactured by ORKA Food Technology (better known as "EggTester.com") are gaining market share and strong recognition in South America markets based on their versatility, cost and reliability.

Due to such increased activities, ORKA is looking for resellers and/or distributors in South America, especially Mexico, Peru and Chile.

They do not necessarily have to be large companies but should be highly motivated

and have good connections with local egg producers, packers, universities, laboratories and primary breeders.

The current ORKA range comprises:

- The Egg Analyzer: this instrument determines the weight of eggs, albumen height, Haugh units, yolk colour and USDA grade for routine quality control and regulatory compliance.
- The Egg Force Reader: this device measures the force required to crush a shell and is a direct measure of market ability.
- The Eggshell Thickness Gauge: this instrument uses ultrasound to measure the thickness of shells for quality control and research applications.
- The Digital Haugh Tester; this instrument is extremely precise and friendly to use in order to assist you with the correct process of reading of the albumen height.

If you are interested in becoming our resellers and/or distributors in South America, please contact Katz Yoshida by

email

**[yoshida@eggtesterorkatech.com](mailto:yoshida@eggtesterorkatech.com)**

or visit the web site, **[www.eggtester.com](http://www.eggtester.com)**.

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## How to Tell If Your Hen Is Laying Eggs

UK - Mike Colley, FAI Farms' Poultry Manager, explains how to tell if your female chicken is in lay.

Unless you find the eggs in the hen house or run, how do you know if a pullet or hen is in lay?

In this video clip, Mike shows how to tell if a female chicken is laying eggs.

Firstly, he checks the health of the birds, looking at:

- feather condition of the body and wings
- eye, nostrils, comb and wattles
- vent (cloaca or "back-end")

To tell if the hen is laying eggs, feel gently around the vent, as Mike explains. The area will feel inflated when the hen is in lay.

If the area feels taut or the bird looks unwell, she may not be laying and may have an illness such as egg peritonitis.

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## South America Targets Russian Market

GLOBAL - The South American meat sector is making a concerted effort to fill the gap in the Russian market left by the ban on

imports from the EU, US, Canada, Australia and Norway.

Over the last week a trade mission from the Argentine Ministry of Agriculture, Livestock and Fisheries has been in Moscow in a bid to diversify and expand exports.

The mission was headed by the Secretary of Institutional Political and Agricultural Emergency Coordination, Javier Rodriguez. The discussions were also attended by the Minister of Industry, Debora Giorgi, and Secretary of International Economic Relations, Ministry of Foreign Affairs, Ambassador Carlos Bianco.

On the Russian side, was Sergey Dankvert, director of the Federal Service for Veterinary and Phytosanitary Supervision of Russia (SENASA Argentine equivalent body) and Vice President of the Russian Chamber of Commerce.

The Argentine delegation demonstrated the performance of the sector over the last 10 years and future perspectives.

Mr Rodriguez also stressed the strategic importance of the relationship with Russia and the work that has been done since early this year in conjunction with the Ministry of Foreign Affairs through the Enhancement Programme and Export Diversification (PADEX).

He said that there are good prospects opening up for the export of poultry, dairy - particularly cheeses - wine and quality beef.

A total of 113 Argentine firms were present, of which 88 belong to the food industry.

In addition, there were companies in the agricultural machinery sector, as well as pharmaceutical, oil and gas companies.

The delegation also took part in the International Fair World Food Moscow, which is the most important in relation to food event held in region.

The fair was also a target for meat exporters from Brazil.

The Association of Brazilian Animal Protein, ABPA, said that it was an opportunity to fill the space left after the barriers imposed on the European Union, United States and Australia.

Last month, Russia was the largest importer of beef and pork produced in Brazil and the expectation is for an increase in volumes shipped to Russia from September.

ABPA said that the commercial relationship with Russia, however, is still considered unstable.

“Historically there is some caution in relation to Russia, because the industry does not know how long it can plan and count on the demand of the market,” said the vice president of the Brazilian Association of Swine Animal Protein (ABPA), Rui Vargas.

He said that in the past the industry has come to face oversupply and falling prices after raising investments with a focus on the Russian market.

The ABPA and the Brazilian Association of Meat Export Industry (Abiec) have been in Moscow alongside representatives of the

Ministry of Agriculture for the World Food Moscow.

The goal, according to Mr Vargas, is to strengthen relations with the country.

“Participation in the fair will be important to strengthen and give greater solidity to partnerships with local importers, allowing more planning,” he said.

The president of Abiec, Antonio Jorge Camardelli, said it meat exports to Russia had been growing even before the embargo on imports from other countries.

He added that the trip to Russia comes at a strategic moment.

“The fair is important at this time because it is a space where you can establish perennial partnerships,” said Mr Camardelli.

In August, the Russian market was the main destination of exports of Brazilian beef.

According to the Abiec, the country exported 33.800 tons to Russia, an increase of 5.7 per cent compared with August 2013 In revenue, sales totalled \$147.2 million, which represents an increase of 21 per cent.

Also last month, Brazil sold 14,500 tons of pork to Russia, with a revenue of \$70.7 million - figures that, according to ABPA, represent a growth of 16.2 per cent and 82.5 per cent, respectively.

Exports to Moscow accounted for 35 per cent of total shipments in August.

“Russia has been increasing its stake in the Brazilian pork exports.

The outlook is for a gradual increase.



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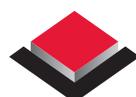
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“In 2013, turnout was just over 20 per cent and I believe we can reach 40 per cent at the end of this year,” Mr Vargas said.

For ABPA, also exports of chicken meat should benefit from the increased demand in Russia.

According to Mr Vargas, the Russian market consumes about nine per cent of sales outside of Brazil.

“Surely the segment can increase this share, but it is important to emphasise that Russia already meets much of its demand for poultry internally.”

Mr Camardelli did not forecast a possible increase in demand in Russia, but he said that as Brazil had the ability to supply product and together with the capacity, the

country could fill the hole left by the lack of exports from the US and Australia.

Abiec ABPA expects the peak shipments to Moscow to be between October and November.

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## Poultry Companies Look to Boost Processed Chicken Exports

INDIA - India's poultry farmers, who remain concerned about the possibility of the government allowing duty-free imports of chicken legs from the US, are looking at increasing exports of processed chicken.

According to The Economic Times, a drop in feed prices has made Indian chicken competitive in the international market,



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- *Reduce waste*



which has prompted the farmers to explore the opportunity.

To begin with, the sector is planning to beef up its presence in the Middle East, which mostly imports processed chicken from Thailand, Vietnam and Brazil.

The poultry sector is anxiously watching whether the chicken leg import issue will come up during Prime Minister Narendra Modi's upcoming visit to the US, where talks are likely to focus on strengthening bilateral trade ties between two nations.

The external affairs ministry had proposed to allow duty-free imports of American chicken leg in return for US access to Indian basmati rice and fruits.

Local poultry farmers say such a step would lead to dumping of an item that Americans usually discard.

Americans prefer chicken breast meat, which is sold at a premium, and chicken legs are sold at throwaway prices, say Indian farmers.

"We had requested the agriculture ministry not to allow duty-free import of chicken legs from the US. The minister had assured us that he would look into it," said Amit Saraogi, chairman, Compound Livestock Feed Manufacturer's Association (India).

"But in the meantime, we are trying to increase exports of processed chicken to the Middle East so as to take advantage of the falling input cost prices and also to create a market for our chicken in the world market."

## New EU Laws on Veterinary Medicines Planned

EU - New proposals have been put forward that will make veterinary medicines more available in the EU to treat and prevent diseases in animals.

The European Commission has been given the go ahead to plans for veterinary medicinal products and medicated feed that are aimed at improving the health and wellbeing of animals, tackling antimicrobial resistance (AMR) in the EU and fostering innovation.

Alongside the proposals for veterinary medicines, the Commission aims to modernise the legislation surrounding medicated feed, bringing pets into the scope of the regulations.

The Commission said that the idea is to ensure the appropriate standard of product quality and safety in the EU, while paving the way for better treatments for diseased animals at the same time.

The proposed rules are designed to benefit animals – including aquatic species, their holders, pet owners, veterinarians and businesses - including the pharmaceutical and feed industries, in the EU.

Tonio Borg, European Commissioner for Health, said: "These proposals both have animal health and welfare at their heart.

"However, they also represent a major step forward for public health as they introduce measures that contribute towards combatting the growing threat of

antimicrobial resistance (AMR), keeping antibiotics effective for people and animals alike.”

The National Office of Animal Health (NOAH) has backed the European Commission’s move to improve the availability of veterinary medicines throughout Europe.

NOAH chief executive Phil Sketchley said: “NOAH will be looking at the detail of the texts in the coming days and weeks, and reviewing their potential impact.

“We look forward to working with the VMD, who have called stakeholder workshops to examine the texts. We will also be supporting our European federation IFAH-Europe as they work determinedly with the European institutions over the coming years to support

the Commission’s vision for a more efficient regulatory system for veterinary medicines in Europe.

“We believe the value our industry brings to society is very high, despite being quite a small sector. For example, veterinary medicines benefit public health by preventing zoonotic disease and supporting food security.

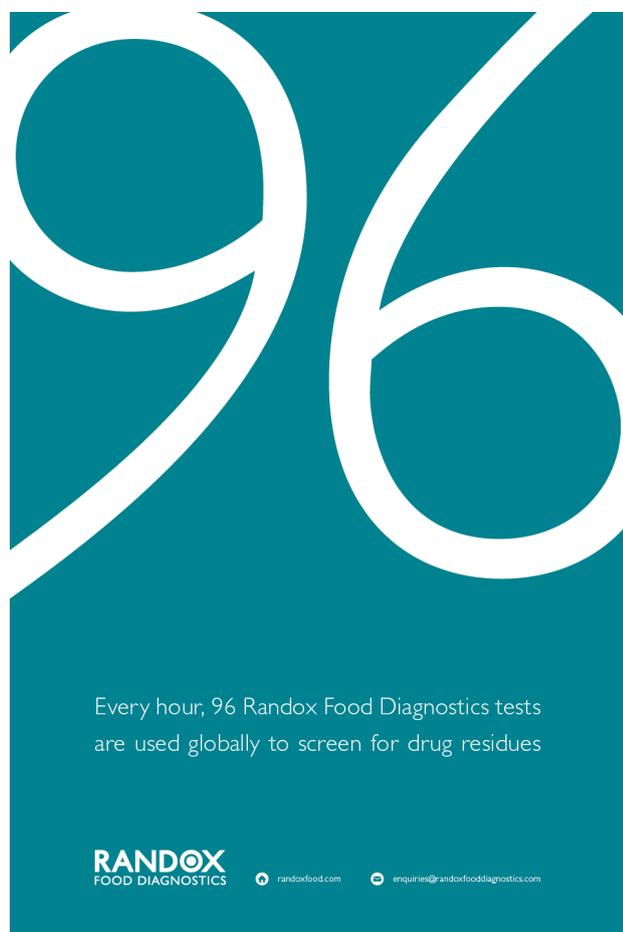
“With synergies with our own UK Government’s commitment to reduce unnecessary red tape, which is a key theme for DEFRA, the animal health industry in Europe needs greater efficiency to cut the red tape for our industry. We look forward to a streamlined registration process which delivers a single European marketing authorisation for all veterinary medicines,” he added.

“We will also be considering if the text has any particular implications for the UK animal health market and access to medicines for our animals.”

NOAH has also applauded the revised medicated feed legislation.

“NOAH believes this is an important route for administering prescription medicines to animals. We will work to help ensure the legislation is capable of maintaining and strengthening this route,” Mr Sketchley said. NOAH said that currently, the manufacturers of veterinary medicines struggle with a regulatory system with some serious flaws:

- A highly segmented internal market and regulatory framework characterised by high product development and licence maintenance costs, limiting availability



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particularly in smaller markets and for minor species,

- Insufficient protection of intellectual property which stifles investment in innovation,
- A disproportionately high administrative burden which diverts funds and expertise away from new product development and risks depriving animals of modern medicines and treatment options.

The Commission's proposals aim to tailor legislation on veterinary medicines to the needs of the veterinary sector while continuing to ensure a high level of public and animal health and a safe environment.

The proposed Regulation builds upon existing EU rules for veterinary medicines which ensure that only medicines that have been granted a marketing authorisation can be placed on the market.

However, rules are simplified to ensure the development of suitable medicines for animals in the EU.

This reduction in red tape will concern both the marketing authorisation procedure and the monitoring of side effects (pharmacovigilance).

The proposed rules are particularly timely for minor species such as bees, goats, turkeys, horses etc. for whom available medicines are currently lacking.

To combat AMR and to help keep antibiotics effective in humans and animals, the proposal introduces the possibility of restricting the authorisation and use in animals of certain

antimicrobials that are reserved to treat human infections.

The proposed Regulation will repeal and substitute the outdated Directive (90/167/EEC) on the manufacture, placing on the market and use of medicated feed.

After veterinary prescriptions, medicated feed is an important route for administering veterinary medicines to animals. Its aim is to harmonise the production standards and marketing of medicated feed in the EU at an appropriate safety level, and to reflect technical and scientific progress in this area.

The proposed rules will ensure that medicated feed can only be manufactured from specifically authorised veterinary medicines and by approved manufacturers. AMR will be tackled through measures such as a ban on medicated feed being used preventively or as growth promoters.

EU-wide residue limits for veterinary medicines in ordinary feed will also be established at a limit to avoid the development of AMR.

The scope of the proposal explicitly includes medicated feed for pets, so that pets – especially those with chronic diseases, can be treated more easily with innovative medicated pet food.

Other EU institutions, including the European Parliament and the Council, will consider the Commission's proposals and will adopt their positions in due course, in accordance with the co-decision procedure.



### **A pesar de Rusia, el comercio avícola mundial crecerá**

El informe trimestral de Rabobank acerca del sector avícola indica que el comercio mundial de pollo y pavo seguirá creciendo hasta fines de año y más allá.

Los precios de la carne blanca se mantendrán altos, mientras que los precios de la carne oscura caerán un poco.

El informe de Rabobank del tercer trimestre de 2014, publicado la semana pasada, indica que se esperan buenos márgenes de crecimiento en todo el mundo, debido a una gran demanda por el pollo, a los altos precios de las otras carnes y a las expectativas de menores costos de insumos de alimentos.

El veto ruso contra la Unión Europea, Estados Unidos y otros países no cambiará las expectativas positivas para el sector avícola, opuesto a lo que se había creído.

Sin embargo, lo que pasará es que los canales tradicionales de exportaciones cambiarán significativamente, con Brasil reforzando su liderazgo.

Mientras tanto, la UE y los EUA batallarán por mercados en África, Asia y Europa Oriental. En consecuencia, se espera que caigan los precios de las piernas de pollo y de la carne mecánicamente deshuesada.

## Recirculación eficaz del aire

Termotecnica Pericoli siempre se esfuerza por encontrar la solución más práctica y rentable a los diferentes retos que se plantean en las instalaciones de producción. La estratificación del aire puede no solo ser costosa por el malgasto y la ineficiencia en la utilización de la energía, un recurso costoso, sino que también puede ser muy perjudicial para la producción. La gama de ventiladores de circulación ACF, compactos y ligeros, sin duda satisface esos requisitos.

Aunque son ligeros y compactos, también son fuertes y fiables. Disponibles en acero inoxidable o galvanizado, según la naturaleza del entorno o aplicación, también se dispone de las mismas opciones de materiales para las hélices.

Los modelos de tres etapas (36", 30" y 25") también cuentan con hélices de gran desplazamiento que son eficaces y tienen un gran rendimiento.

Los modelos de dos etapas únicas (22" y 18") tienen paletas diseñadas para ser eficaces y fáciles de instalar con conexiones Plug and Play, protegidas por el estándar internacional IP55, con protección contra sobrecarga térmica.

El diseño innovador y la ingeniería han producido un ventilador de circulación con un alcance ampliado que puede combinarse con el nebulizador pulverizador de agua RWA para crear un sistema de recirculación de aire, enfriamiento o humidificación que es muy rentable, fácil de instalar, operar y mantener.

## FIGAP 2014: 22 al 24 de octubre

FIGAP, Expo Técnica y Científica y Tecnológica de la Industria Pecuaria en México, tomará lugar del 22 al 24 de octubre en la Expo Guadalajara, Guadalajara, Jalisco, México.

Los días 20 y 21 de octubre, en el mismo predio, se llevará a cabo el Taller de Fabricación de Alimentos Balanceados.

Las empresas expositoras incluyen fabricantes de maquinaria para la industria de los alimentos balanceados, equipos agropecuarios, salud animal, genética, nutrición, software pecuario, fabricante de alimentos balanceados y forraje, empresas acuícolas, distribuidores de ingredientes y aditivos, así como empresas de transportes, entre otros.

Para conocer más acerca de FIGAP e inscribirse, vaya a: [www.figap.com](http://www.figap.com).

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## Influenza aviar H5N6

La reciente aparición de una cepa del virus de la influenza aviar en aves de corral en el sudeste asiático, conocida como A(H5N6), representa una nueva amenaza para la sanidad animal y los medios de subsistencia y requiere un estrecho seguimiento.

Así lo ha advertido la Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO). Las autoridades chinas informaron por primera vez del virus de la influenza A (H5N6) en aves de corral en abril de 2014. Desde entonces, Laos y Vietnam también han detectado el virus H5N6 en aves domésticas.



## ¿Jaulas inteligentes para mejorar la producción de huevo?

**Se está desarrollando un sistema de monitoreo automático y una jaula inteligente en proyecto entre empresas y la Universidad de Antioquia en Colombia, informa DICYT, la Agencia Iberoamericana para la Difusión de la Ciencia y la Tecnología.**

En un día, en una jaula de 39 x 34 x 23 centímetros, tres gallinas comen, duermen, se acicalan, se rascan, pican, caminan, vigilan, se estiran y, si pueden, aletean.

Varias jaulas de este tipo y algunas un poco más grandes, agrupadas de manera serial, conforman la estructura de los galpones que más se utilizan en Colombia.

Sobre ellas inciden varios factores, entre ellos los ambientales, que modifican los

comportamientos de estas aves, sus condiciones de confort y por ende la producción de huevo.

Ante esto, el grupo GaMMA -Genética, Mejoramiento y Modelación Animal- y el grupo SISTEMIC -Sistemas Embebidos de Inteligencia Computacional- de la Universidad de Antioquia, están diseñando un sistema que incluye equipos de captura de información y una aplicación para su análisis.

### **Medición de parámetros**

Esto permitirá hacer un diagnóstico del estado de un galpón a través la medición de varios parámetros.

Se trata de una serie de sensores en red que miden la temperatura, los niveles de

amoniaco y la velocidad del viento, los cuales están identificados como factores que perturban la estabilidad de las gallinas.

Toda la información que recolectan estos dispositivos sería recibida por un software, desarrollado con el uso de R Project, en el que los niveles de ciertas variables otorgarían a los productores de huevo en Colombia avisos periódicos de las condiciones ambientales del galpón y alarmas, en el caso de encontrar niveles críticos en las variables de interés. Esto le permitirá al productor tomar una serie de decisiones y controlar un ambiente de confort para estas aves.

“Necesitamos producir huevos para una población en continuo crecimiento en la que el huevo es un alimento altamente nutritivo y de fácil acceso, siendo el reemplazo de otras fuentes de proteína para familias de bajos recursos económicos.

"Entonces nos encontramos con la paradoja: ¿Cómo llegar al punto de equilibrio entre la producción de huevos y los sistemas en que se disminuyen el estrés y garanticen un espacio confortable para el ave?

El objetivo nuestro es promover desarrollos tecnológicos que permitan satisfacer el mercado de productos de alta calidad y de primera necesidad como el huevo, sin infringir las condiciones de bienestar y confort de las gallinas”, indica el investigador del grupo GaMMA, Luis Fernando Galeano.

### **Comportamiento de las gallinas**

Con el fin de caracterizar el comportamiento habitual de las aves y el efecto de los cambios del clima en ellas, fue necesario un paso

previo en el que se evaluaron las actividades cotidianas de las gallinas en La Montaña, finca de la Universidad de Antioquia, durante un día desde las cinco de la mañana hasta las siete de la noche, a lo largo de 17 días. Allí se encontraron algunos comportamientos asociados al bienestar y otros al estrés -estereotipados- de las aves en jaula.

En los 49.140 registros gráficos se encontró que, por ejemplo, actividades como el picaje que se define como “picotazos fuertes (arranque de plumas) y agresivos dirigidos hacia otra gallina o suaves sin arranque de plumas”, según una adaptación que los investigadores hicieron de autores como Büttow y Zimmerman, están asociados a estrés y se dan con mayor frecuencia entre las cuatro y las cinco de la tarde.

Se tuvo en cuenta, además, dos medidas diferentes de jaula para evaluar los efectos de la densidad de las aves por jaula. Allí se encontró que los comportamientos no fueron afectados en gran medida por la densidad de las gallinas.

Sólo estirar y acicalarse fueron actividades restringidas al aumentar el número de gallinas por jaula.

En este sentido, están las jaulas enriquecidas que constan de diversos elementos con los que estas aves pueden tener mayor libertad para sus acciones cotidianas, además de proveerle elementos como la arena con los que ellas interactúan y no se encuentran en las jaulas comunes.

Alrededor de esto se han tejido discusiones sobre las condiciones en las que las gallinas deben estar. ■

# Industry.Events



**Animal Care and Handling  
Conference 2014**  
**Westin Crown Center, Kansas City,  
Missouri, US**  
**Thursday 16th to Friday 17th**

Organised by the American Meat Industry Federation, the Animal Care and Handling Conference for the Food Industry is a leading animal welfare educational opportunity for meat companies, their customers and those involved in the production and management of livestock and meat products.

**European Association of Veterinary  
Laboratory Diagnosticians (EAVLD) 2014**  
**Pisa, Italy**  
**Sunday 12th to Tuesday 14th**

EAVLD and the Italian Association of Veterinary Laboratory Diagnosticians (SIDiLV) are hosting the 3rd EAVLD Congress on veterinary diagnostics.

The EAVLD Congress on veterinary diagnostics takes place every two years.

Previous editions have shown that there is a need to present and discuss the development and use of veterinary diagnostic tools on a European level.



**VietStock 2014 Expo and Forum**  
**Saigon Exhibition & Convention Centre (SECC), Ho Chi Minh City, Vietnam**  
**Wednesday 15th to Friday 17th**

Selecting the correct suppletion and production in your livestock business will enable you to achieve business sustainability as well as avoiding harm to animal health and the environment.

Themed 'Restructuring the Livestock Industry for Sustainable Development', VietStock 2014 is specially designed to link qualified industry professionals at one central location.

**New Zealand Poultry Industry Conference 2014**  
**Christchurch, New Zealand**  
**Tuesday 7th to Wednesday 8th**

The New Zealand Branch of the WPSA will be hosting the 2014 New Zealand Poultry Industry Conference.

# Listings.Business Directory

## Health & Welfare

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### Ceva Animal Health

Tel: +33 (0) 557 554 040  
Fax: +33 (0) 557 554 198  
info@ceva.com  
www.ceva.com

#### Areas:

Pharmaceuticals  
Vaccines  
Equipment: Vaccination  
and Medical)  
Feed: Additives

CEVA Santé Animale is a global veterinary health company focused on the research, development, production and marketing of pharmaceutical products and vaccines for pets, livestock, swine and poultry.



### Merck Animal Health

animal-health-communications@merck.com  
www.merck-animal-health.com

#### Areas:

Feed: Safety Products  
Feed: Additives  
Feed  
Cleaning/Disinfectants  
Pharmaceuticals

Merck Animal Health offers veterinarians, farmers, pet owners and governments the widest range of veterinary pharmaceuticals, vaccines and health management solutions and services



### Zoetis

Tel: +1 919 941 5185  
GP.Marketing@zoetis.com  
www.zoetis.com

#### Areas:

Vaccines  
Biodevices  
Feed Additives  
Diagnostics

Zoetis strives to support those who raise and care for farm animals by providing a range of products and services that offer tangible solutions to the many challenges veterinarians and livestock producers face every day.

## Breeding & Genetics

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### Aviagen

Tel: +1 256 890 3800  
Fax: +1 256 890 3919  
info@aviagen.com  
www.aviagen.com

#### Areas:

Breeding  
Genetics

The Aviagen Group is the global market leader in poultry genetics. As the world's premier poultry breeding company, Aviagen develops pedigree lines for the production of commercial broilers and turkeys.



### Cobb Vantress

Tel: +1 479 524 3166  
Fax: +1 479 524 3043  
info@cobb-vantress.com  
www.cobb-vantress.com

#### Areas:

Breeding  
Genetics

Cobb broiler breeding stock has the sustained advantage of the most efficient feed conversion and highest potential for profitability for the company's global customers.



### Grimaud Frères Sélection

Tel: +33 (0)2 41 70 36 90  
Fax: +33 (0)2 41 70 31 67  
grimaudfreres@grimaudfreres.com  
www.grimaudfreres.com

#### Areas:

Breeding  
Genetics

Grimaud Frères are a multi-species selection and breeding operator in the service of the waterfowls and festive poultry field.



### Hubbard

Tel: +33 296 79 63 70  
Fax: +33 296 74 04 71  
contact.emea@hubbardbreeders.com  
www.hubbardbreeders.com

#### Areas:

Breeding  
Genetics

Hubbard provides solutions that focus on the economic performance, health and well-being of breeding stock. Hubbard specializes in state-of-the-art selection programs to improve the performance of their pure lines.



### Hy-Line

Tel: +1 515 225 6030  
Fax: +1 515 225 6030  
info@hyline.com  
www.hyline.com

#### Areas:

Breeding  
Genetics

Hy-Line International is a world leader in poultry layer genetics with a rich history of innovation. Hy-Line was the first poultry breeding company to apply the principles of hybridization to commercial layerbreeding.



### Novogen

Tel: +33 296 58 12 60  
Fax: +33 296 58 12 61  
contact.novogen@novogen-layers.com  
www.novogen-layers.com

#### Areas:

Breeding  
Genetics

NOVOGEN offers a new alternative giving the egg producers more choice and possibilities to fit their specific market requirements.



### Indbro Poultry

Tel: +91(40) 24145594  
drkotaiah@indbropoultry.com  
www.indbro.com

#### Areas:

Breeding  
Genetics

Started off as a Broiler breeding company, with pure line birds developed and bred under Indian Climate, feed & management since 1990.

## Biosecurity & Hygiene



### CID LINES

Tel: +32 5721 7877  
Fax: +32 5721 7879  
info@cidlines.com  
www.cidlines.com

#### Areas:

Biosecurity  
Cleaning  
Feed: Additives  
Health and Safety  
Pest Control  
Welfare

CID LINES offers VIROCID, the most powerful disinfectant, which is part of a hygiene program for poultry, written by hygiene specialists. VIROCID has a proven record in preventing and fighting disease outbreaks for many years.



### PCS Poultry Services

Tel: +44 (0) 1386 701 812  
Fax: +44 (0) 1386 701 376  
admin@pcspoultry.com  
www.pcspoultry.com

#### Areas:

Biosecurity  
Hygiene  
Cleaning Services  
Pest Control

FOSSIL SHIELD + PCS Poultry, the solution to your red mite problem. Unique professional on-site electrostatic application with Fossil shield, a non-toxic natural diatomaceous powder.

## Feeding & Nutrition

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### AB Vista

Tel: +44 (0) 1672 517650  
Fax: +44 (0) 1672 517660  
info@abvista.com  
www.abvista.com

### Areas:

Feed  
Feed: Additives  
Feed: Nutrition

AB Vista is an integrated international supplier of new generation micro-ingredients for animal feeds providing visionary solutions for your agribusiness.



### Biomim

Tel: +43 2782 803 0  
Fax: +43 2782 803 30  
office@biomin.net  
www.biomin.net

### Areas:

Feed  
Feed: Additives  
Feed: Nutrition

BIOMIN offers sustainable animal nutrition products such as quality feed additives and premixes, which include solutions for mycotoxin risk management, a groundbreaking natural growth promoting concept as well as other specific solutions



### Danisco Animal Nutrition

Tel: +44 (0) 1672 517777  
Fax: +44 (0) 1672 517778  
info.animalnutrition@dupont.com  
www.animalnutrition.dupont.com

### Areas:

Feed: Additives

Danisco Animal Nutrition (part of DuPont) is a leading global supplier of enzymes, natural feed betaine, probiotics and essential oils to improve the nutrition of poultry, pig, ruminant and some aquaculture species. Our mission is to develop sustainable solutions that further decrease feed costs, increase animal productivity and reduce environmental impact.



### Kerry

Tel: +31 36 523 3100  
Fax: +31 36 523 3110  
clive.girdler@kerry.com  
www.kerry.com/animalnutrition

### Areas:

Feed  
Feed: Additives  
Feed: Safety

Kerry Ingredients & Flavours is a leader in developing, manufacturing and delivering technology-based ingredients and integrated solutions. Our products are designed specifically to optimize the nutritional value and maximize the energy of feed ingredients in poultry diets.



### Novus International

Tel: +1 314 576 8886  
Fax: +1 314 576 2148  
contact@novusint.com  
www.novusint.com

### Areas:

Feed  
Feed: Additives  
Feed: Nutrition

Novus International is a global leader of animal health and nutrition programs for the poultry, pork, beef, dairy aquaculture and companion animal industries.

## Housing & Equipment

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### Big Dutchman

Tel: +49 4447 801 0  
Fax: +49 4447 801 237  
big@bigdutchman.de  
www.bigdutchman.com

### Areas:

Equipment: Breeding  
Equipment: Drinking  
Equipment: Egg  
Equipment: Feeding  
Equipment: Weighing

The poultry equipment supplier for layer management, breeder management, poultry growing and poultry climate control.



### Termotecnica Pericoli

Tel: +39 0182 589006  
Fax: +39 0182 589005  
termotecnica@pericoli.com  
www.pericoli.com

#### Areas:

Climate Control  
Climate Management  
Heating, Cooling and Ventilation

A global market leader specializing in climate technology since 1967 in design, manufacture and distribution of efficient/quality heating, cooling and ventilation equipment and systems for the poultry industry with a full range of products to meet all specification and applications.



### Vencomatic

Tel: +31 (0) 497 517380  
Fax: +31 (0) 497 517364  
info@vencomatic.com  
www.vencomatic.com

#### Areas:

Equipment: Breeding  
Equipment: Drinking  
Equipment: Egg handling and grading  
Equipment: Nesting

Vencomatic is a global supplier of innovative and welfare friendly housing solutions for the poultry sector. The flexible and turn key solutions of Vencomatic offer large possibilities for a wide range of poultry production concepts.

## Incubation & Hatching

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### Orka Food Technology

Tel: +852 8120 9245  
Fax: +852 2802 7112  
info@orkatech.com  
www.eggtester.com

#### Areas:

Equipment: Egg  
Equipment: Hatching  
Equipment: Incubation

EggTester.com (officially known as “Orka Food Technology”) is a leading worldwide manufacturer of egg-quality testing equipment to be used extensively in QC laboratories operated by egg producers, packers, universities, regulatory authorities, and primary breeders.



### Pas Reform

Tel: +31 314 659 111  
Fax: +31 314 652 572  
info@pasreform.com  
www.pasreform.com

#### Areas:

Equipment: Incubation  
Equipment: Egg  
Equipment: Environment  
Equipment: Hatching  
Waste Handling

Pas Reform is an international company, which has specialized in the development of innovative hatchery technologies for the poultry sector since 1919. Products and Services: Incubators, Hatchery Automation Systems, Hatchery Climate Control Systems and Hatchery Management Training.



### Petersime

Tel: +32 9 388 96 11  
Fax: +32 9 388 84 58  
info@petersime.com  
www.petersime.com

#### Areas:

Equipment: Hatching  
Equipment: Incubation

Petersime is a world leader in the development of incubators, hatchery equipment and turnkey hatcheries.

## Events & Exhibitions

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### VIV Worldwide

Tel: +31 30 295 28 98  
viv@vnuexhibitions.com  
www.viv.net

#### Areas:

Events & Exhibitions

With 6 VIV exhibitions all over the world VIV trade exhibitions are recognized for high trade quality in the professional industry. With over a 1,000 international companies exhibiting and visitors from over 140 countries the VIV-shows are also considered as very international.



# Optimum Vitamin Nutrition

## In the production of quality animal foods

Foreward by Jackie Linden,  
ThePoultrySite.com

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Optimum Vitamin Nutrition - In the production of quality animal foods

Foreward by Jackie Linden

£65.00

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