

the drumstick

Spring 2012 | Vol 30 No 2

Welcome

Welcome to the Spring 2012 edition of The Drumstick.

This edition of The Drumstick brings with it some news of new regulations and requirements that growers and others in the poultry industry should be aware of. Firstly, as of 1 September 2012, all properties with 100 or more poultry birds (domesticated fowl, chickens, ducks, geese, turkey, guinea fowl, pigeons, quail or pheasants) must have a Property Identification Code for the land on which their birds are kept.

Another issue which growers have been asking about is what litter materials they are allowed to use under the new Food Safety Standards and what they need to do to comply with the standards.

Lastly, new standards and guidelines for the Land Transport of Livestock, including poultry, are scheduled to come into effect in NSW in November 2012. These standards and guidelines replace the previous *Model Code of Practice for Land Transport of Poultry*. For more information on these stories see the full articles in this edition of The Drumstick.

In addition to the 'legal stuff' you need to know about, this edition covers other areas of interest including:

- LED lighting – now a real alternative to save money
- Water quality – what is it and does it really matter?
- Weighing birds – is it a waste of time?
- ILT – Dr George Arzey explores the recent claims over vaccines recombining into a 'super virus'
- The Poultry Research Foundation – who are they?

I trust that at least one of the stories in this edition is something new, interesting or relevant to you and that the Drumstick continues to inform and add value to your business.

Best Wishes
Byron Stein
Editor



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Key messages from Poultry CRC Ideas Exchange 2012

THE DRUMSTICK

The Drumstick is a free quarterly newsletter produced by NSW Department of Primary Industries, providing information and updates for the poultry industry.

CONTRIBUTIONS

Letters and stories from growers and industry personnel are always welcome.

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Professor Mingan Choct, Chief Executive Officer, Poultry CRC

The Poultry CRC held its annual Ideas Exchange conference on the Gold Coast between 23–25 September 2012. Ideas Exchange is our Poultry CRC annual conference, which is designed to enhance communication amongst our researchers, students, board members and industry experts in a relaxed environment.

Ideas Exchange 2012 covered 26 presentations in four sessions, focussing on tackling industry challenges presented to scientists or scientific solutions delivered to industry. A number of key topics were discussed.

The overarching question was, 'How will the Australian poultry industry, which is a major contributor to Australia's food basket (43 kg meat and 213 eggs per capita), be able to continually improve productivity in the face of an increasing regulatory burden, political and public pressure on animal welfare and food safety, extreme weather events affecting feed supply and price, shortage of skilled labour force, and access to credible information?'

To elaborate on the regulatory burden issue first, a new "National Primary Production and Processing Standard for Poultry Meat (Standard 4.2.2)" has recently been introduced, which, in some states, will require all poultry producers to be registered and licensed in order to continue to farm. You can find details about this Standard at the Food Standards Australia New Zealand website (Primary Production and Processing Standard for Poultry Meat).

There is also a new National Land Transport Standard to be implemented in the near future. Its details can be found at the Australian

government's Department of Agriculture, Fisheries and Forestry website (Australian Animal Welfare Standards and Guidelines).

On the issue of extreme weather events, the recent droughts in the USA have led to massive increases in the cost of feed ingredients, pushing up the price of a tonne of feed by more than one hundred Australian dollars. Furthermore, the current lack of spring rain in Australia is also creating a great deal of uncertainty about the amount of grain available for feed use from the end of this year into 2013.

Finally, I would like to touch upon the issue of how poultry producers may access credible information. Indeed, this sounds ironic in the era of information explosion but it is precisely because of the availability of vast amounts of information on the internet that busy farmers will not be able to sift through hundreds of pages of search items to find one that is credible and useful. To address this challenge, there was much discussion about the Poultry CRC initiative to create a repository for previous poultry research projects accessible to farmers. It is proposed that such a repository will be created and then widely publicised in close liaison with the various industry and government organisations over the coming 2–3 year period.

Judging from the overwhelmingly positive feedback, I believe Ideas Exchange 2012 achieved its objectives of enhancing collaboration, producing innovative ideas and creating industry solutions. Thank you to everyone who provided feedback and ideas for next year.

Reprinted with permission from <http://www.poultryhub.org/2012/10/key-messages-from-ideas-exchange-2012/>

Drumstick GuidePost



The Drumstick GuidePost contains links to useful websites, resources, contact details and other information for the poultry industry. The intention is to grow the GuidePost as new resources and information is gathered and discovered. If you know, or are aware of

any useful websites or other resources pertinent to the industry, and which are not displayed below, please let the Editor know so that we can continue and develop this resource into a truly useful reference for everyone in the poultry industry.

Topic	Description	Reference or contact details
Research and Development		
RIRDC Chicken Meat Program	This site contains a large number of very useful project reports ranging from topics on nutrition, litter re-use, energy efficiency and much more.	https://rirdc.infoservices.com.au/collections/cme
Poultry CRC and Poultry Hub	The Poultry CRC conducts research and drives education and training to help Australia's poultry industries produce more from less, sustainably.	www.poultrycrc.com.au/ www.poultryhub.org
Poultry Research Foundation	The Foundation sponsors industry related research, assists in the training of scientific personnel and acts in an industrial liaison capacity.	http://sydney.edu.au/vetscience/foundations/prf/introduction.shtml
Peak Industry and Coordinating Bodies		
Australian Chicken Meat Federation	ACMF is the peak coordinating body for participants in the chicken meat industries in Australia.	www.chicken.org.au
Australian Chicken Growers Council	The Australian Chicken Growers Council (ACGC) Limited represents the interests of contract meat chicken growers at the national level.	www.acgc.org.au
Australian Egg Corporation Limited	The Australian Egg Corporation (AECL) is a producer owned company which integrates marketing, research and development and policy services for the benefit of all stakeholders.	www.aecl.org
NSW Farmers Contract Poultry Group	The Contract Poultry Group has 10 members representing all geographic growing areas of the state on a proportional basis.	www.nswfarmers.org.au/advocacy/livestock/contact-poultry-meat
Poultry industry news and technical articles		
WorldPoultry.net	Global poultry news, events, market analysis, technical articles and much more.	www.worldpoultry.net
The Poultry Site	Updated daily, the web site delivers up-to-the-minute industry and product news, technical articles and information on a wealth of subjects including health & disease, nutrition, technology and much more.	www.thepoultrysite.com

Topic	Description	Reference or contact details
The Poultry Digest	Poultry Digest is the only independent commercial publication delivering industry news to the layer (egg) and broiler chicken meat industries in Australia and New Zealand. We also publish information of other commercial poultry species like duck, turkey and quail.	http://poultrydigest.com
Biosecurity		
Australian Government Department of Agriculture, Fisheries and Forestry	The Australian Government Department of Agriculture, Fisheries and Forestry website has a wealth on information and resources on biosecurity for the poultry industry.	www.daff.gov.au/animal-plant-health/pests-diseases-weeds/biosecurity/animal_biosecurity/bird-owners/poultry_biosecurity_manual
Farmbiosecurity.com.au	Farm Biosecurity is a national education and engagement campaign which aims to help producers reduce the risk of diseases, pests and weeds.	www.farmbiosecurity.com.au/
NSW Department of Primary Industries – Biosecurity Section	Livestock producers and owners are in the best position to protect their own animals, and those of their neighbours and the wider livestock industries, by adopting good biosecurity practices.	www.dpi.nsw.gov.au/biosecurity/animal
Poultry housing, ventilation, husbandry and other technical information		
Auburn University	Poultry ventilation and housing tips. Based on American research and conditions.	www.aces.edu/poultryventilation/
University of Delaware Poultry Extension	Information on just about anything poultry. Based on American research and conditions.	http://sites.udel.edu/poultryextension
Avian Advice	Information on just about anything poultry. Based on American research and conditions.	www.avianadvice.uark.edu
poultryventilation.com.au (University of Georgia)	This site contains a wide variety of information related to poultry house environmental control and energy conservation:	www.poultryventilation.com
Animal Welfare		
Animal Welfare Science Centre	Our scientific research and teaching capacity in animal welfare science is considerable and we have made many important national and international contributions to animal welfare research, teaching and training.	www.animalwelfare.net.au
RSPCA Science Updates	Every quarter, the RSPCA Australia science team produces the Animal Welfare Science Update. The aim of the update is to raise awareness of recent developments in animal welfare science that relate to the work of the RSPCA.	www.rspca.org.au/resources/science-updates

Topic	Description	Reference or contact details
Food Standards and Food Safety		
NSW Food Authority	The NSW Food Authority is the government organisation that helps ensure food in NSW is safe and correctly labelled. Their website has information on the new food safety standards for chicken meat.	http://www.foodauthority.nsw.gov.au/industry/industry-sector-requirements/meat/poultry/
NSW Legislation, codes of practice, technical information, industry guidelines and best management practice documents and more		
NSW Department of Primary Industries	NSW DPI's role is to provide support to the poultry industry through the provision of an extension officer, research scientists, diagnostic laboratories, publications, poultry keeping courses and regulatory services. We also have extensive information on landuse planning and development for intensive livestock industries.	www.dpi.nsw.gov.au/agriculture/livestock/poultry www.dpi.nsw.gov.au/agriculture/farm/planning
NSW based poultry meat processing companies		
Baiada Poultry Pty Limited	Baiada Poultry Pty Limited is a privately owned Australian company which provides premium quality poultry products throughout Australia.	www.baiada.com.au
Cordina Farms	Is an Australian owned family company with 65 years experience in the Poultry business.	www.cordina.com.au
Inghams Enterprises	Is a family company that began on a small farm in south-west Sydney more than 80 years ago. Since then it has grown into a multi-faceted company and one of the largest producers of chickens and turkey products in Australia.	www.ingham.com.au
Red Lea Chickens	Red Lea Chickens produces more than 100 product lines that are sold on to Wholesalers, Supermarkets, Butchers, Restaurants, Hotels and Clubs as well as 47 Retail Outlets of their own that sell direct to the public.	www.redlea.com.au
Pepe's Ducks	Pepe's Ducks is now the largest producer of ducks in Australia and New Zealand, producing over 70,000 ducks per week. The company consists of its own broiler farms, breeder farms and hatcheries.	www.pepesducks.com.au



Full page, Alltech ad

Growers, do you have a PIC?

Byron Stein, Editor

A PIC is a Property Identification Code, and from the 1st September 2012, anyone who keeps 100 or more poultry birds (domesticated fowl, chickens, ducks, geese, turkey, guinea fowl, pigeons, quail or pheasants) **MUST HAVE a PIC** for the land on which their birds are kept. This requirement also applies to anyone with one or more cattle, sheep, goats, pigs, bison, buffalo, camelids (e.g. alpacas, llamas, camels), equines (horses, donkeys), deer, or 10 or more emus or ostriches which they own or manage and which are kept by them on their own property or on any other property.

What exactly is a PIC?

A property identification code or PIC is a unique identifier for land used for keeping livestock. PICs are assigned to individual properties and allocated by Livestock Health and Pest Authorities (LHPA), who maintain a register of PICs and keep information related to PICs up to date.

A PIC consists of two letters and 6 digits. An example of what a PIC might look like is NK471234.

Why do I need a PIC?

All states and territories in Australia now require owners of livestock, including 100 or more poultry birds, to have a PIC. This is to assist with tracing specific properties in the event of a major disease or residue problem, for

example during an Avian Influenza outbreak. The ability to quickly trace infected properties and properties at risk will help both the government and the industry to control and eradicate exotic diseases more effectively and hopefully reduce the incidence and cost of lengthy disease eradication campaigns.

How can I obtain a PIC?

You can obtain a PIC by:

1. submitting your registration form online at <https://customerportal.lhpa.org.au/pic-registration/>
2. downloading an application form (www.lhpa.org.au) and lodging with your local Livestock Health and Pest Authority, or
3. contacting your local Livestock Health and Pest Authority.

How much does a PIC cost and how do I pay for it?

For non-LHPA ratepayers, the PIC registration fee is \$66 (including GST) for three years. For new LHPA ratepayers or current ratepayers who have stock and do not have a PIC, a registration fee of \$11 (including GST) applies and the PIC will remain active as long as the landholder remains a ratepayer.

Once your application is processed an invoice will be sent to you for payment, which will outline your payment options. These options include cheque, Bpay, Eftpos and cash; please note that not all offices provide these options. For those submitting via the online registration process, online payment is not available at this time.

What about agistment and lease properties?

Normally each property has its own PIC. However, one PIC can be used for more than one property provided the properties are used for a common purpose (e.g., to graze the same livestock) and are adjoining or nearby, subject to approval by the LHPA district registrar.

What happens if I don't comply with the requirement to obtain a PIC?

The onus is on individual property and stock owners to comply with PIC requirements.

Any person using a service provided by NSW Department of Primary Industries or an LHPA, which relates to a property on which a PIC is required, must provide the PIC of that property if requested to do so.

Quarter page, Central Poultry Industries Pty Ltd ad

NOTE: For this reason it is very important to ensure that the name recorded against your PIC, the name under which you sell stock, and the name given by your veterinarian when making laboratory submissions for disease diagnosis or certification are the same. If there are alternative addresses related to your PIC, please ensure that you mention these and have them recorded by LHPA staff.

Compliance of the expanded PIC requirements should be achieved through advisory and market-based activities and incentives led by livestock industries. Regulatory action may occur in high risk situations or for significant breaches when other methods have failed. The infringement notice penalty for not having a PIC is \$550.

Who administers the PIC scheme?

LHPAs administer the PIC registration scheme in NSW. LHPAs in your area can be contacted by obtaining details from the LHPA website: www.lhpa.org.au/contact

Where can I find more information?

Visit the LHPA website at www.lhpa.org.au or contact your local LHPA office in your region.

If you are unsure which LHPA district you are in contact the LHPA State Management Council on 02 6391 3242 for assistance.



Quarter page, District Realty Pty Ltd ad

Half page, R & E Sheds ad

Full page, District Realty Pty Ltd ad

Litter material – what the new Food Safety Standards have to say

Byron Stein, Editor

I have had several calls from growers recently expressing concern about the new Food Safety Standards in relation to litter. The new Food Safety Standards came into effect in May 2012 and it imposes some obligations in terms of the supply and use of poultry litter for growing meat birds.

Several growers have told me that poultry litter suppliers are required to provide a letter or similar documentation stating that the litter is free of contaminants. This is not the case, and I could not find any reference to this in the standard. However litter is required to meet certain minimum standards, and litter suppliers are required to provide a vendor declaration.

So what are the requirements for poultry litter and has anything changed in terms of what litter you can use and what you can't?

Essentially very little has changed in terms of what you have always been using for poultry litter. The key difference is that you need to keep a record of litter deliveries, including details of the supplier, and the supplier or vendor is required to sign a vendor declaration when supplying the litter to your farm. The declaration, which must be signed by the vendor, needs to state that the litter:

1. does not contain product derived from treated timber

2. was stored to minimise exposure to wild birds and rodents.

Treated timber includes any timber treated with Copper Chromium Arsenic (CCA) or other chemicals. This also applies to any other litter materials, for example rice hulls or shavings from recycled timber products, including wood pallets.

Where can I get one of these vendor declaration forms?

Vendor declaration forms are available from the members section of the Australian Chicken Meat Federation (ACMF) website at <http://www.chicken.org.au>. Alternatively contact your processor for a copy.

For more information on the new Food Safety Standards visit the ACMF website. The site has loads of information about the standard, and the members section includes a number of resources developed specifically for growers. The NSW Food Authority website also has very good information and can be found at <http://www.foodauthority.nsw.gov.au/industry/industry-sector-requirements/meat/poultry/>

If you want more information on the Food Safety Standard but don't have access to the internet, contact the NSW Food Authority on 1300 552 406.



Third page, Aqua Wash ad

Why watch those weights!

Tips on weighing birds to achieve better uniformity and to accurately estimate slaughter weights.

Byron Stein, Editor

If you aren't measuring it, you aren't managing it. Those growers that tend to accurately measure, record and react to weekly bodyweight of their birds tend to have better and more predictable performance than growers that do not accurately weigh their birds and react to this information. This can be the difference between growers at the top and bottom of their respective pricing pools.

There are a number of reasons why growers should frequently and accurately measure bodyweight. These include:

- Accurate measurement of bodyweight during the life of the flock gives early indication of problems which allows growers to quickly develop solutions to prevent or reduce production penalties at the end of a batch.

- Achieving consistent, predictable body weights at slaughter is dependant on achieving good seven day bodyweight and target weekly body weights up to kill.
- Effective monitoring of weekly bodyweight enables quick resolution of any feed quality problems.
- Early diagnosis and treatment of health and disease issues.
- Body weight is one of the key pieces of information that help growers to supply uniform flocks at the right age and weight to processors for slaughter. The age at which birds achieve the correct weight to meet specific markets and customer demand can only be predicted by accurately measuring the bodyweight and growth rate of broilers.

OK, so how many birds and how often do I need to weigh?

A simple answer to this question is 'more birds and more often!' Sure, but how many and how often? The textbooks and broiler management manuals tell us that this depends on the uniformity of your flock. The more uniform the flock, the fewer birds need to be weighed

Half page, Heritage Water Tanks ad

to get an accurate and reliable measure of average bodyweight. The reverse is true of variable flocks. However uniformity may be subjective and may depend on the observer and their experience.

....how many birds should I weigh?!!

In practice, an accurate and reliable method for monitoring growth and predicting slaughter weight is to weigh 50–70 birds at 2 locations within each shed of broilers (a total of 100–140 birds per shed). All birds in each catch should be individually weighed. Do not skip birds unless the bird is in such poor condition that it has to be removed from the flock and humanely culled. Throwing birds out which look larger or smaller than the average can skew the body weight estimate.

How often should I weigh?

This might be determined by your processor. As a minimum, weigh birds at least once a week, starting on day 7 through to day 28 and then a couple of days before each thin out. Weighing birds more frequently will provide greater accuracy and reliability. Birds should be weighed on the same day each week. If weighing more than once per week, keep the days consistent to simplify the calculations of gains e.g. weigh every Monday and Thursday. If possible, aim to weigh the birds at the same time of day on weighing days to minimise variation and improve consistency of results.

Quarter page, Wallaby Fabrication ad

Does it matter where I sample the birds being weighed?

There are some claims that the extreme ends of the shed tend to have the lightest birds. To increase the accuracy of your estimates it is recommended to sample your first catch/pen of birds a third of the way down the shed and sample the second catch two thirds of the way down the shed.



What equipment should I use?

Unless you have automatic weighing equipment your options include either spring-loaded or electronic scales. Electronic scales have the following advantages over spring-loaded scales:

- The operator no longer needs to decide where the needle stopped on the dial of the scale, read the number correctly, record the number correctly, or make the calculation correctly — a modern electronic scale will do this for you.
- In addition to calculating average weight, an electronic scale can also determine uniformity (or coefficient of variation).
- Weights and data can be downloaded directly to your computer if required.

Key Points

- Weigh birds frequently and accurately to ensure effective prediction of live weight at slaughter.
- Weigh a sufficiently large number of birds (>100).
- Weigh birds that are representative of the whole flock.
- Use accurate scales.

In summary

By following the above procedures growers can make better management decisions and give more accurate predictions of slaughter weight to processors. Responsive management based on accurate and reliable information will improve broiler performance resulting in greater returns for growers. Accurate slaughter weight will improve efficiency and profitability of the processing plant.



Full page, Globe Australia ad

ILT, what is going on?

By GG and KE Arzey

Outbreaks of infectious laryngotracheitis (ILT) have continued in NSW during 2012. The graph below presents the number of outbreaks in different types of chickens in each year since 2008.

Compared with previous years the number of outbreaks in 2011–2012 has dropped, although it is important to remember that 2012 isn't over. The total number of outbreaks in NSW in 2008 was 45 and in 2012, fifteen outbreaks have been reported for the first half of the year. The breakdown of outbreaks in 2008–2012 is as follows:

Broilers

- 57 unvaccinated
- 6 vaccinated
- Mangrove Mountain, Sydney, western NSW
- Mostly Class 8/9, 7 or not typed

Layers

- 3 vaccinated (once or twice)
- 9 unvaccinated
- ILT breaks only in vaccinated flocks in Sydney
- Class 8 or 9 or not typed

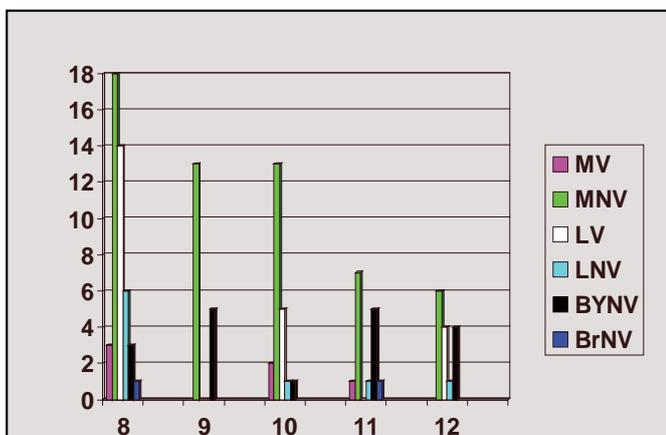
Back Yard

- 18 unvaccinated (class 2, 3, untyped) NSW country (type 2, 3).

Breeders

- 2 (unvaccinated), NSW country

ILT outbreaks 2008–2012, NSW



Key

MV – Meat birds (vaccinated) LNV – Layers not vaccinated
 MNV – Meat birds not vaccinated BYNV – Backyard flocks (not vaccinated)
 LV – Layers vaccinated BrNV – Breeders not vaccinated

Most outbreaks have been associated with viruses that emerged from the mixing of the genetic material of two vaccine viruses together.

The outbreaks have been reported in both vaccinated and non-vaccinated flocks of chickens. While some believe that this may indicate that the vaccines are incapable of protection against the newly emerged recombinant viruses, our experimental challenge trials at EMAI demonstrated clearly that the vaccines were capable of offering very good protection even against a recombinant virus.

The appearance of outbreaks among vaccinated birds may be regarded by some as unusual or a unique event, however, this is not a new phenomenon and in 1986–67 more than 50% of the layer flocks that were reported in NSW with ILT breaks were flocks that were vaccinated either in the drinking water or by eye drop. Similarly in Pennsylvania, USA, between 1986 and 1987 thirty two vaccinated layer flocks were reported breaking with ILT. (imperfect vaccination implicated in 13 flocks). During 1987–1991, 25% of all flocks breaking with ILT in Pennsylvania were vaccinated flocks. Vaccine breaks associated with high mortality have been reported commonly overseas 15–20 weeks post vaccination.

A break in vaccinated flock does not necessarily indicate inability of the vaccine to protect. Successful vaccination does not start nor finish with mixing of a vaccine in water or in a diluent. Optimal vaccination requires careful attention to details such as dose rate, vaccine mixing, neutralising chlorine in the drinking water and optimal uptake—and even with optimal vaccination, erratic results can be experienced with mass application of the vaccine via drinking water. Contact between sufficient vaccine and the nasal epithelial cells is required for effective induction of immunity. Vaccination outcomes are also influenced by other factors including the uniformity of immunity in the flock and the level of local immunity at the time of the second vaccination.

Are the viruses that emerged from the vaccine viruses more virulent than the parent viruses?

Science on-line published an article on 13 July 2012 informing the readers of the first reported case of ILT vaccines recombining to form **a more virulent virus than the parent vaccine viruses**. Indeed an important and a very relevant topic with a potential to alarm at least some elements of the general population and also cause some misapprehension among producers.

World Poultry stated: "Three vaccines in use in Australia, two produced by Pfizer and one from European company Intervet have resulted in the appearance of two new strains of ILTV, named class 8 and class 9. These new strains are becoming more prevalent and are just as deadly as the previous ILTV strains".

Dr Lee, the leading author of the article, was quoted saying that "comparison of the vaccine strains and the new recombinant strains have shown that both the recombinant strains cause more severe disease"

In order to demonstrate this, the authors allocated a small number (10) of live chickens to different treatments that included; 2 groups infected with the recombinant viruses, 3 groups infected with 3 ILT vaccine viruses and a group that received no treatment. They measured their weight gain (as an indicator of the impact of the treatment with each viral infection) on day 4 and 7 after the treatments were applied and concluded on the basis of differences in weight gain that the newly emerged viruses were more virulent than the parent vaccine (significant difference was observed only between class 8 and one group that received a vaccine virus treatment).

Cardinal rule

One of the cardinal rules of good scientific experiments is to include an untreated group in the experiment in order to be able to demonstrate that whatever differences are observed between treatments, are associated with the specific treatment and not with other experimental variables. Indeed such a group was included. **However**, significant difference in weight gain was not shown between it and any of the treatments. It is similar to claiming that drinking an herbal tea X can lead to a 20% weight reduction but when comparison is done no difference in weight can be found between those that drank the herbal tea and those that did not.

Even between the mildest vaccine (A20) and the recombinant viruses, a significant difference in weight-gain was not demonstrated. In summary, no significant difference in weight gain (as a measure of virulence or virus nastiness), was demonstrated between non-treatment and treatment groups and no significant differences were observed between the groups receiving infection with the recombinant viruses and the group that was infected with the mildest Australian vaccine. This casts significant doubts as to whether the weight gain differences could be attributed to the treatment rather than to other experimental conditions especially when it is considered that there was no replication of treatments and only 10 birds per treatment.

Inaccurate information

The paper by Lee et al, citing Devlin (Devlin et al, Vaccine 29, 5699, 2011) claimed that "these virulent strains (the newly emerged viruses) have been associated with mortality of 17.6% in the field". However, in the cited paper by Devlin the recombined viruses (class 8/9) were not mentioned, and this is an issue of concern when information that does not exist in the cited paper is incorporated in the paper. However, even if this information was accurate, no comparative data on mortality associated with the parent vaccines was provided to enable the reader to evaluate the differences in mortality from vaccine strains and the mortality from the recombined virus.

Long before the emergence of the new viruses (classes 8, 9), ILT outbreaks due to vaccine virus have been recorded in Australia and internationally. Mortality of up to 18% has been reported between 8 and 16 days post vaccination with at least one of the Australian vaccines (SA2). This mortality is as high as the 17.6% mortality cited (apparently inaccurately) from Devlin's paper and therefore, it does not demonstrate higher virulence than vaccine viruses.

Is the recombination of herpes virus (ILT and other similar viruses) vaccines a newly discovered phenomenon?

Dr Devlin one of the co-authors of the article published by Science stated in an article in Science Daily (July 12/2012) that "combining of live vaccine virus strains outside the laboratory was previously thought to be highly unlikely."

Contrary to the paper published by Science (Lee et al, Science 337, 188, 2012), and contrary to what was stated in Science Daily by Dr Devlin, the recombination of herpes viruses, including vaccines, has been described previously elsewhere. (Henderson LM et al, Am. J. Vet. Res.52, 820–825, 1991; Kan MG and Kim SJ, Vet Microbiology 83, 321–331, 2001). Although the paper in Science stated that "Recombination between herpes viruses has been seen in vitro and in vivo under experimental conditions, analysis of Korean field strains of infectious Laryngotracheitis virus concluded that at least one of the field strains isolated from outbreaks of ILT in Korea was a recombination of 2 viruses; one of them a vaccine virus (Kan MG and Kim SJ, Vet Microbiology 83, 321–331, 2001).

Summary

Indeed, class 8 and 9 (newly emerged viruses from vaccine recombination) have been responsible for a significant number of outbreaks in NSW (and Victoria) since 2008 but the scientific data that supports certain claims deserves better scrutiny than what was apparently demonstrated in Science. The 17.6% mortality reported by Lee et al in Science as an indication of virulence in the field is not higher than previously reported 18% mortality with some Australian vaccines (note that the 17.6% mortality was not proven to be associated with the recombined

viruses). While the recent outbreaks associated with the recombinant vaccines are of concern and may indicate a better ability to spread between flocks or a better ability to survive in the environment, they do not necessarily indicate that the recombinant vaccines are more virulent than the original vaccines. The article published by Science does not provide enough experimental data to support the contention that the recombined viruses are more virulent than the vaccine viruses. Anecdotal data may be useful and should not be ignored but it should not replace good science.

There is a mighty difference between a newly emerged ability of a virus and “discovering” an ability that has been around for many years (the ability of herpes virus vaccines to recombine in animals was reported as early as 1990 (Henderson et al, J Vet Research, Vol 51, October 1990).

The fact that following infection with a field virus or inoculation/administration of vaccine ILT viruses, the virus remains in the chicken in a dormant stage (hidden infection) that can be re-activated following certain stressors, provides an opportunity for ILT viruses to recombine and mix their genetic material to form a new virus. None of these phenomena is new.

Careful and effective vaccination has a very good likelihood of providing good protection but farm management elements like biosecurity would also help to reduce the risk of vaccine recombination with either another vaccine virus or with a field virus.

(More details can be found in the comment from the authors that has been attached by Science to the original digital publication).



Low pathogenic avian influenza H9N2 in turkeys

George Arzey

In April 2012 H9N2 low pathogenic avian influenza virus was confirmed on a turkey farm housing approximately 26,500 turkeys in 3 sheds near the Hunter Valley. The birds' ages ranged from 27 to 43 days. Increased mortality was evident in one shed and coughing, sneezing and gasping was observed in a second shed. At necropsy sinusitis, fibrinous pericarditis (inflammation of the heart), perihepatitis (inflammation of the surface of the liver), enlarged livers and spleens, inflammation of the air sacs and oedema and swelling around the eyes and beak were evident.

Exclusion testing at the State Veterinary Laboratory found the samples were positive to avian influenza virus by PCR (polymerase chain reaction). The virus was later identified by the Australian Animal Health Laboratory (AAHL) as H9N2. This avian influenza virus subtype is common in poultry in other countries but this is the first time that it has been reported in poultry in Australia. It is also the first reported case of any avian influenza in turkeys in Australia.

The farm was voluntarily depopulated using a foaming agent. Composting of dead birds and other organic matter was done on the farm and the temperature of the composting piles was monitored.

There were no movements of turkeys from the farm and no other commercial poultry farms within a 10 km radius. Surveillance was carried out on the company farms that had either been visited by personnel or feed trucks that also visited the infected farm. On one of these farms the same virus was detected in a healthy flock of turkeys. On further sampling on this farm, 2

weeks later, no avian influenza virus was detected—PCR samples were negative but blood/serum samples were AI antibody positive, indicating that the infection was no longer active.

It is unclear whether the virus was transmitted somehow between the 2 farms or was acquired independently by each farm. Although the second farm was visited by personnel that visited the first farm, the visit took place 2.5 days later and the person did not enter the sheds. The second farm was in a wetland area with ample potential opportunities for acquisition of the infection directly or indirectly from wild ducks.

The route of acquisition of the infection by either of the farms was not elucidated. Although the first farm's water supply was from a large dam near the sheds, the drinking water was chlorinated at concentrations aiming to kill this and other viruses. Possible routes of entry could include carriage of the virus into the shed by boots or equipment as well as the drinking water if it was treated sub-optimally. Rarely has the route of avian influenza infection into farms been identified in outbreaks in Australia but generally wild waterfowl are believed to be the main source of most avian influenza infections. In May, 2012 H9, AI virus subtype was identified in samples collected from magpie geese and wild ducks in the Hexham wetland area and in previous years H9N2 was detected in wild ducks on the Morpeth sewage ponds. Both areas are within 40 km radius of the affected farms.

The health of farm staff and company personnel in contact with the turkeys was closely monitored. No human cases were detected.

Full page, Titan Poultry Equipment Pty Ltd ad

The Poultry Research Foundation – an expose

Who or what is the Poultry Research Foundation and what does it do?

Byron Stein, Editor

I recently came across a reference to the Poultry Research Foundation and decided to look into who they are and what they do.

In a nutshell, the Poultry Research Foundation is a partnership between the University of Sydney (Faculty of Veterinary Science), the poultry industry, funding bodies with an interest in poultry and a wide range of commercial companies which supply products and services to the poultry industry. The Foundation was established so that the University of Sydney could receive funds and sponsorships to conduct and support a range of research projects and to employ staff to conduct or administer this research. According to their webpage the aims of the Foundation are to:

1. To provide an interface between the poultry and allied industries in Australia and the University of Sydney.
2. To undertake research of relevance to these industries.
3. To assist in the training of scientific and technical personnel to service the private and public sectors of these industries.
4. To act in an industrial liaison capacity.

Whilst it appears that the Foundation's primary research focus is directed at the metabolism and nutritional requirements of poultry, a review of their current research programs indicates that they have a broader scope than just nutrition.

Current research programs include, but are not limited to:

- Salmonella control in layer flocks
- Effects of incubation differences on the broiler skeleton
- Efficient, environment and bird friendly duck production
- Measuring stress in hens maintained in different housing systems
- Welfare of laying hens in cages

Funds to conduct research are provided by a wide cross section of funding bodies such as the Poultry CRC, RIRDC Chicken Meat Programme, AECL and also commercial companies such as Alltech, Danisco, A.B.Vista and DSM. From the chicken meat processor perspective, Inghams, Baiada and Cordina have representatives which attend Foundation meetings.

In addition to supporting research, the Foundation also hosts the annual Australian Poultry Science Symposium. The Australian Poultry Science Symposium is the premier avian science conference in Australia and attracts delegates from Asia, Australasia, the Americas and Europe. The Symposium is usually hosted at the Veterinary Science Conference Centre, University of Sydney. For more information contact Jo-Ann Geist at jo-ann.geist@sydney.edu.au or call her on 9351 1656

In her 2010 report, the then president of the Foundation, Ms Linda Browning wrote that they would be seeking continued growth in membership, particularly from egg and broiler producers throughout Australia. So, if you are an egg or broiler producer who wishes to make a contribution to poultry research I would urge you to contact the Poultry Research Foundation for more information about how to become a member.

Where is the foundation based?

The administrative office and Research Unit are based at Camden, NSW.

How can I get more information about the Poultry Research Foundation?

If you have access to the internet search for Poultry Research Foundation using your favourite search engine. Alternatively, ring the Faculty Office on 02 9351 1665 and ask for the Poultry Research Foundation.



NSW Growers reap rewards from energy efficiency program

Byron Stein (Editor) and Ray Lee
(NSW Farmers)

In 2011 growers were invited to take part in a subsidised energy efficiency program funded by the Office of Environment and Heritage and facilitated through NSW Farmers. Forty broiler growers, 10 turkey growers and 1 egg grower took advantage of the program which ended in September 2012.

So, was it worth it? Three case studies suggest it was and at least three growers will be significantly better off as a result of the program.

Case Study 1. As a result of the subsidised energy audit, John Wilkinson from the Lower Hunter replaced 36 1.1kW fans with 24 0.74kW energy efficient fans. The net cost of replacing the fans after sale of the old fans and the \$5000 Energy Efficiency for Small Business (EESB) Program rebate was \$43,861.

That's a fair sum of money on new fans, was it worth it?

You be the judge! John is now saving \$10,763 a year in electricity costs which means he will recover his investment in about 4.1 years. Not a bad investment by any measure.

Case Study 2. David Rakus, also from the Lower Hunter, installed Power Factor Correction equipment at a cost of \$6,270. He is now saving \$1,300 per year and with the EESB rebate will recover the cost of his investment in 2.4 years.

Case Study 3. An audit of Josh Hunt's farm showed that 22% of his energy use was from lighting. With help from the EESB he installed 8W cold cathode globes to replace his old T8 and 75W incandescent globes. The cost of replacing his lights was about \$13,500. Was it worth it? At current electricity rates Josh is saving \$7,300

per year and with the help of the rebate will recover his investment in 1.2 years.

It should be noted that even if the energy rebate funding was not available, each of the growers would be better off. If energy costs are eating into your profits, why not consider getting an energy audit done on your farm? It may be worth it.

For more information on subsidised energy audits contact your local Office of Environment and Heritage or go to <http://www.environment.nsw.gov.au/sustainbus/energyauditing.htm>

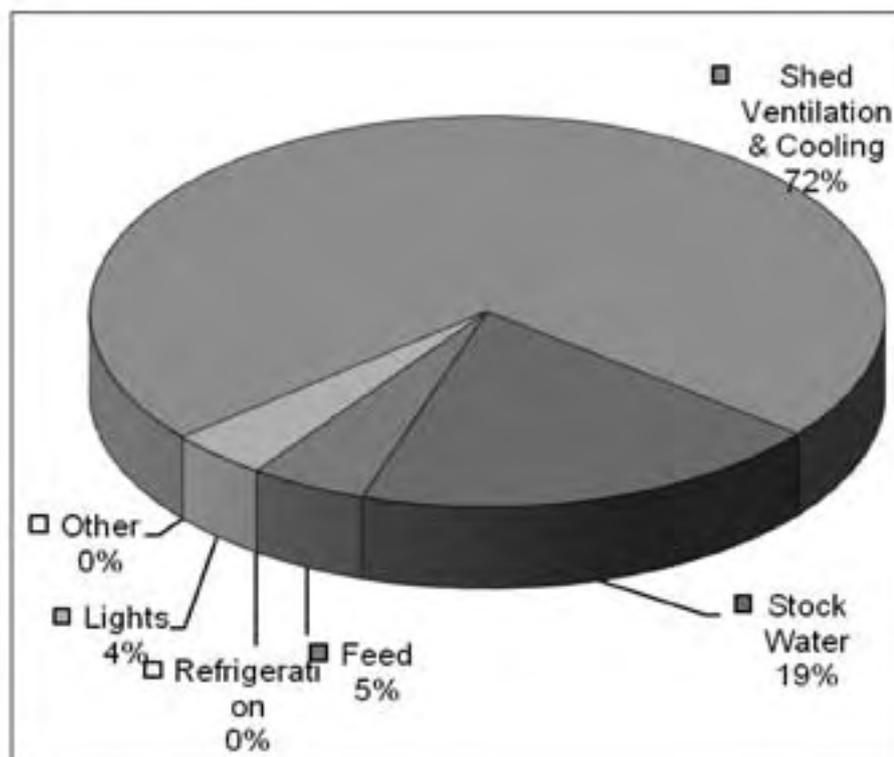


Figure 1. Where is your farm energy being spent?

Full page, R & DG Sanday ad

Water quality standards for poultry – may as well be cola

Byron Stein, Editor

A number of ‘how to’ or ‘what to’ publications state the obvious – ‘provide your birds with an adequate supply of good quality water at all times’. No argument there, but unless ‘good quality water’ is defined we may as well be giving them cola.

So what is ‘good water quality for poultry’ and what sort of impact does water quality have on production and bird performance?

The answer is that water quality can have significant or subtle effects on poultry production, and these effects may be both direct and indirect. Not only can high levels of bacteria, minerals or other pollutants in drinking water have negative effects on poultry performance, but so can combinations or interactions of certain elements under specific conditions. For example, drinking water with elevated nitrate levels hasn’t been shown to affect broiler performance under neutral to high pH conditions. However, nitrate combined with low pH (5.75) has been shown to negatively affect broiler performance. Another example is of a farm which swapped the water supply of one of two adjacent sheds to a newly drilled bore. The succeeding batches did not perform as well as the shed connected to the old bore. When the new bore was disconnected bird performance returned back to normal. Testing showed that the water from the new bore had higher concentrations of sodium and sulphate.

As mentioned above, water quality may also have indirect impacts on broiler performance. An example of this is **manganese**. While manganese itself has not been shown to cause a negative effect on poultry health, at high levels it can form solid particulates (or bits) that can cause leaky drinker nipples and clogged floggers. This will result in wet litter which equals ammonia and hot temperatures which equals a drop in production. In areas where **calcium and magnesium salts** are naturally high water may be ‘hard’ which can lead to scale and

sludge build-up in water lines. This in turn reduces the effectiveness of soaps and disinfectants and interferes with the administration of some medications.

The key messages here are:

1. Water quality is important.
2. Water quality can significantly affect bird performance.
3. Water quality is more than just bacterial counts.
4. Minerals and other elements in water may be OK on their own but in combination with others may lead to problems.

‘OK, I’m convinced that water quality is important, so what can I do about it?’

1. Test your water at least annually, more often if you have recently had very high or extended low rainfall periods (as these can have an impact on water quality).
2. The test results will be useless unless you:
 - a. test for the right things
 - b. sample water correctly
 - c. get help in figuring out what the test is telling you.

OK, so what should I test for?

Total dissolved solids (TDS)

Total dissolved solids is a measurement of salinity. Calcium, magnesium and sodium salts are the primary components that contribute to TDS. High levels of TDS are the most commonly found contaminants responsible for poor health and performance of poultry. Salinity is also reported in terms of electrical conductivity (EC), which is simply another measure of salinity. Table 1 provides guidelines for the suitability of water for poultry with different levels of TDS and EC.

TDS (ppm)	EC (dS/m)	Comments
Less than 1000	2	Suitable to any classes of poultry.
1000 to 2999	2–3	Satisfactory for all classes of poultry. Higher levels might cause watery droppings, but should not affect health or performance.
3000 to 4999	3–4	Poor waters for poultry, often causing watery droppings, increased mortality and decreased growth.
5000 to 6999	4–5	Not suitable for poultry.

Adapted from National Research Council, 1974. Nutrients and toxic substances in water for livestock and poultry, National Academy of Sciences, Washington, DC.

Table 1. Suitability of water with different levels of Total Dissolved Solids (TDS) and Electrical Conductivity (EC).

Full page, Dieci ad

Table 2 below lists some of the individual elements, nutrients, contaminants and water characteristics to test for. It also identifies some of the combinations and interactions to look out for. It must be noted that not all of the levels below may directly impact on poultry health. However elevated levels of some elements may cause equipment malfunction or failure resulting in indirect impacts on birds.

Contaminant or Characteristic	Level Considered Average	Maximum Acceptable Level	Remarks
Bacteria (Organisms/100 ml)			
Total bacteria	0	≤ 1,000	0/ml is desirable
<i>E.coli</i>	0	0	0/ml is desirable
Coliform bacteria	0	≤ 100	0/ml is desirable
Nitrogen compounds			
Nitrate	10 mg/L	30 mg/L	Some studies have shown that levels of nitrate from 3 to 20 mg/L may affect performance while others have shown that nitrates as high as 600 mg/L did not affect bird health. Presence of nitrate is a good indicator that water should be checked for bacteria.
Nitrate	0.4 mg/L	4 mg/L	
pH	6.8 to 7.5	---	A pH of less than 6.0 is not desirable. Levels below 6.3 may degrade performance.
Total Hardness CaCO ₃	50 to 300 mg/L	---	Hardness levels less than 50 are unusually soft; those above 300 are very hard. Hard water can lead to scale and sludge build-up within water lines, reducing the effectiveness of soaps, disinfectants and medications.
Naturally occurring compounds			
Calcium Chloride	60 mg/L 14 mg/L	500 mg/L 250 mg/L	For chloride, even levels as low as 14 mg/L may be detrimental if the sodium level is higher than 50 mg/L.
Copper	0.002 mg/L	5 mg/L	5 mg/L is the Australian standard. It should be noted that the American standard is 0.6 mg/L. This might be because higher levels (>0.6 mg/L) have been linked to water with a bad odour and taste.
Iron	0.2 mg/L	0.3 mg/L	Higher levels may produce a bad odour and taste. At high levels iron may form solid particulates such as iron oxide which can lead to leaky nipples and blocked fogging nozzle openings.

Contaminant or Characteristic	Level Considered Average	Maximum Acceptable Level	Remarks
Lead	---	0.1 mg/L	Higher levels are toxic.
Magnesium	14 mg/L	125 mg/L	Higher levels have a laxative effect. Levels greater than 50 mg/L may affect performance if the sulphate level is high. Magnesium contributes to the hardness of water and may cause scaling problems in water lines and fittings.
Manganese		0.05 mg/L	Manganese as high as 20 mg/L has been reported not to affect bird health, but it can have negative effects on water lines and fogging systems.
Phosphorus		0.1 mg/L	This value is an American standard. Australian livestock drinking water standards don't list values for phosphorus.
Potassium		500 mg/L	This value is an American standard. Australian livestock drinking water standards don't list values for potassium.
Sodium	32 mg/L	50 mg/L*	*Levels above 50 mg/L may affect performance if the sulphate or chloride level is high.
Sulphate	32 mg/L	250 mg/L	Higher levels have laxative effect. Levels about 50 mg/L may affect performance if magnesium and chloride levels are high.
Zinc	---	1.50 mg/L	It should be noted that the Australian standard is 20mg/L. However American guidelines suggest that levels higher than 1.50 mg/L may be toxic.

The above data was sourced from:

- Schwartz, DL., "Water Quality," VSE, 81c., Penn. State Univ. (mimeographed); and Waggoner, R. Good, R. and Good, R. "Water Quality and Poultry Performance," in Proceedings AVMA Annual Conference, July, 1984.
- An introduction to the Australian and New Zealand guidelines for fresh and marine water quality, Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, Canberra: ANZECC and ARMCANZ, 2000, adapted from ANZECC (1992) to incorporate more recent information.
- Fairchild, BD and Ritz, CW, 2006, 'Poultry drinking water primer', <http://pubs.caes.uga.edu/caespubs/pubs/PDF/31301.pdf> Accessed Sept. 14, 2012.

Is there a particular way water samples should be collected?

Yes, but it depends on what you are sampling for. For example, sampling for bacteria may be different than sampling for salts and minerals. The best advice is to ask the lab for instructions when ordering a sampling kit.

For most water tests, follow these steps when collecting a sample:

1. Use the container specified by the testing lab. For some tests, water samples may be submitted in a plastic bag or bottle. Other tests require special dark coloured glass bottles. Check with your lab.
2. Take the sample close to the pump before the water goes through a treatment system.
3. Do not take the sample from a swing-type tap if others are available. Inspect the tap for leaks. Select another tap if there is leaking.
4. Remove tap aerator.



5. Disinfect the tap with bleach or a flame (if testing for bacteria or other bugs).
6. Run the water for several minutes (up to 10 minutes) to clear the line if you are interested in the actual quality of the main source of water (groundwater, stream, river, or water from the main distribution lines of a public water system).
7. Take the sample within 3 or 4 seconds after you turn the water on if your concern is the condition of your water pipes or storage tanks. (Some tests, such as maximum contamination for lead, require that water stand in the pipes overnight before being sampled. Follow the instructions provided by the lab.)
8. Take the sample midstream. Do not breathe into or touch the inside of the collection bottle or the inside of the cap.
9. If needed, store the sample in the refrigerator before taking it to the lab.
10. Don't pump petrol or diesel before taking the sample; fumes in the petrol will evaporate off your hands into the sample.
11. Submit the sample as soon as possible. Labs should receive samples within 24 hours (particularly for bacteria tests) and within 48 hours at the latest.
12. Transport the sample in a cooler or ship in an insulated container.



Half page, Australasian Agricultural Services Pty Ltd ad

Full page, Damex ad

LED lighting – worth a look to beat rising electricity costs

Byron Stein, Editor

As input costs continue to rise it is becoming ever more critical for farmers to find and apply savings and production efficiencies just to remain viable. One area of significant concern is rising electricity costs.

Whilst there isn't much farmers can do about the cost of electricity there are a range of ways to reduce electricity usage. Lighting is estimated to contribute an estimated 10% of total farm energy consumption and it makes sense therefore to consider cheaper and more efficient lighting options. One of these options includes the use of LED lighting. LED stands for Light Emitting Diode and first appeared as an option for poultry shed lighting about 4 or 5 years ago. However the early designs of LED bulbs had several attributes which made them poorly suited to poultry sheds. These included finned heat sinks which collected dust and moisture leading to premature failure of the bulbs. The early LED's also emitted a cone-shaped light pattern similar to a floodlight which made achieving uniform lighting very difficult.

The new LED's on the market have addressed these issues to become a viable and cost effective alternative to incandescent, fluoro and compact fluorescent (CFL) systems. LED's use about 1/50th of the energy of a typical

incandescent bulb and are about 8% more efficient than fluoros. The LED's also have a longer life span than the other lighting systems and are expected to last for up to 10 years. Another interesting innovation by one of the LED manufacturers is the design of LEDs to mimic the spectral sensitivity of poultry. This simply means that the light colour and quality has been designed to meet the particular needs of poultry, making them in effect, chicken lights.

It must be noted however that LED's don't come cheap with bulbs costing in the vicinity of \$65. An average shed of 150m by 15m would require approximately 70 LED lights to provide sufficient light uniformity. To change over to LEDs would therefore cost about \$4,550 plus GST and electrical work and labour costs. However sheds in the US that have converted from incandescent globes to LED's have recovered the costs of this upfront investment in about 24 months. This cost recovery and subsequent savings are as a result of a combination of power savings and the longer life of the LED's.

As electricity prices continue to rise it will become increasingly important to consider finding energy efficiencies in every aspect of the poultry business. LED's may be one alternative worth a look.

Half page, KH Heitmann Machinery Aust Pty Ltd ad

Full page, Heritage Tanks ad

Industry News...

New SA research alliance will focus on poultry welfare

The University of Adelaide and the South Australian Research and Development Institute have formed a poultry research alliance.

The Southern Star Poultry Alliance will focus on animal welfare research in chicken meat and egg production.

SARDI livestock and farming systems research chief Professor Alan Tilbrook says they want to determine an appropriate hen stocking density for free range egg production.

“What we’ll be doing through the Southern Star Poultry Alliance is strategic focused research that will be rigorous to try and get an outcome that will be acceptable right across the community.”

Courtesy of ABC Rural

Processing poultry waste adds value

Even with the advances in modern poultry production methodology, up to five percent of all broiler flocks perish prior to reaching processing age. This represents a significant amount of material that must be managed. Until now much of this waste material has been buried in landfill or on farm sites, with potential for detrimental leaching into the local environment. This once cheap and unsophisticated method of disposal is becoming increasingly costly and problematic, with EPA and Local Councils increasingly resistant to such practices.

With the right treatment however, these waste streams could instead have their value recovered, saving this significant loss of raw materials

in the poultry production process. A pilot project being undertaken by Active Research Pty Ltd (AR) and the Poultry CRC proposes an operational trial of the disposal of poultry waste by Anaerobic Digestion (AD). Waste includes poultry carcasses with feathers intact (mortality birds), unseparated eggs and yolks (hatchery waste) and poultry processing sludge.

Utilising AR’s existing mobile pilot digester, the effectiveness of the digestion process will be assessed for hatchery waste, daily mortalities, processing sludge and a mix of these in various proportions. Pre-treatment, digestion and post-digestion processes will be tested and refined in order to best transform these streams of poultry waste.

Half page, Central Poultry Industries Pty Ltd ad

Industry News...

The products of the digestion process will be high-quality soil nutrient and biogas, which can be used to generate heat and/or electricity. AR's semi-commercial scale system used in this field trial is sufficiently realistic that it can then be confidently scaled up to a commercial farming and processing size. The outcome of this project will be the development of a best practice template not only for the broiler industry but the poultry industry as a whole, with knock-on benefits to other agricultural and environmental interests.

<http://www.poultryhub.org/2012/09/processing-waste-adds-value/>

Steggles triumphs in Australian Business Awards 2012

Steggles has taken top honours in The Australian Business Awards 2012, in the category of 'Community Contribution' in its industry.

The award recognises the company's charity achievements, including the Steggles and Sydney Roosters Charity Nest to which over A\$531,000 has been donated since 2010.

Steggles Marketing Manager, Celeste Moroney, said: "Our community work is something which underpins everything we do and is a hugely important part of our business. To be recognised for our achievements in this area is truly rewarding."

Programme Director of The Australian Business Awards, Tara Johnston, said: "These types of accolades don't come easily – they are underpinned by vision and leadership.

"We're proud to promote the models of business and product excellence in addition to highlighting contributions to the community and sustainability initiatives with these leading organisations and to publicly honour their achievements.

"Across the private, public and not-for-profit sectors, the 2012 winners of The Australian Business Awards are innovative, agile and truly 'best in class'."

<http://www.thepoultrysite.com/poultrynews/26707/steggles-triumphs-in-australian-business-awards-2012>

Half page, Intensive Farming Supplies ad

Full page, City Generators ad

Developing a new non-invasive test for welfare status

New Poultry CRC research is aimed at developing a non-invasive test to assess welfare status in birds. The project is led by joint project leaders Drs Tamsyn Crowley and Anthony Keyburn, from Poultry CRC participants, Deakin University and CSIRO, respectively. Anthony and Tamsyn plan to use cutting-edge genetic technology to create a new test, which will exploit the properties of small non-coding ribonucleic acids (RNAs), called microRNAs or 'miRNA'.

Anthony explains that, "traditionally, stress in birds is assessed by measuring the amount of the hormone corticosterone in blood, which works because corticosterone is released by the adrenal glands when the bird's body prepares for 'flight' or 'fight'."

Whilst corticosterone level is an important indicator of stress and is the basis for a valuable non-invasive test, it has its drawbacks. Corticosterone is released in response to a wide variety of stressors, including changes in temperature, humidity, housing space, feed and water. Despite a great deal of refinement and improvement for the test, it is still difficult to pinpoint the precise cause of stress by measuring corticosterone level alone. As Tamsyn concludes, "even the very act of taking a blood sample from a bird can dramatically affect corticosterone levels in less than a minute."

"Finding non-invasive tests for health, production and welfare of farm animals has been a top priority for research and the advent of genomics and molecular biology technology will help advance this

important research area", says Mingan Choct, CEO of Poultry CRC. Indeed, Anthony and Tamsyn are going to work with a number of established animal welfare researchers, combining traditional approaches and frontier science to search for additional objective measures of poultry welfare. Their idea is to use miRNA profiling as a definitive measure of a bird's welfare status based on leads in other research findings. As Tamsyn notes, "recent studies investigating diseases in humans and other animals have shown clear differences in the expression patterns of miRNAs in the blood from healthy animals compared to those suffering disease." Anthony added, "since miRNAs are found in human and cow milk, it's reasonable to expect to find them in eggs. Therefore Tamsyn and I should be able to develop a technique to assess welfare status using eggs, and possibly excreta, non-invasively."

There are a number of existing behavioural and other tests (such as blood and egg cortisone levels) that provide insight into the welfare of poultry. However, if this project is successful, it will provide a clear cut and non-invasive scientific test to determine the welfare status or stress levels of birds, especially laying hens, in various production systems.

<http://www.poultryhub.org/2012/08/developing-a-new-non-invasive-test-for-welfare-status/>

Inghams to be sold by Christmas

One of the biggest meat protein plays in Australia since the JBS purchase of AMH/Swift in 2007 will unfold in coming months, with the information brochure for the sale of the Ingham's poultry business being sent out to prospective buyers in September according to trade sources.



Indicative bids are to be submitted by mid-October and it is hoped a sale deal will emerge before Christmas. For the 12 months to June 30, Ingham's made earnings of a reported \$180 million and is forecast to generate \$200m over the next year. It has a 35pc market share in poultry meat in Australia and an annual turnover topping \$2 billion.

Only JBS, and possibly the merged Teys/Cargill entity, are larger in Australia in terms of turnover among meat protein producers.

Ingham's biggest competitor is Baiada, a family owned entity and the primary supplier to Coles Supermarkets.

With Ingham's generating about \$700m of its sales from its contract with Woolworths supermarkets, the new owner will certainly be wary of the current retail price competition between the two supermarket heavyweights.

Another significant factor is likely to be the steep rise in feedgrain prices this year, which may potentially eat into chicken margins, even more than beef.

Media reports suggest that Kiwi poultry leader Tegel Foods has shown interest, alongside a range of equity and investment capital players.

International interest has reportedly come from Turkey, the United States and Brazil.

<http://www.beefcentral.com/news/article/2119>

Red flag issues



NEW Land Transport of Livestock Standard and Guidelines

Byron Stein, Editor

Poultry farmers, processors, pick-up crews, transporters and others involved in the poultry industry should be aware that new guidelines and standards have been developed for the transport of poultry. These guidelines apply to all states and territories and replace the previous Model Code of Practice for the Welfare of Animals—Land Transport of Poultry, PISC/SCARM Report 91—CSIRO Publishing, 2006.

The new Land Transport Standards combine seven Models Codes of Practice and provisions on livestock transport appearing in 13 other codes.

The Land Transport Standards cover the process of land transport of livestock by road or rail. From an animal welfare perspective, this process commences at the time that animals are first deprived of feed and water prior to loading to the time that livestock have access to water (with the exception of day-old chicks and poultry sent for processing) at the completion of the journey (destination) and includes:

- mustering and assembly
- handling and waiting periods prior to loading
- loading, journey duration, travel conditions, spelling periods
- unloading and holding time.

These Land Transport Standards apply to all people responsible for the care and management of livestock that are transported throughout the entire process including agents, transport operators and people on farms,



at depots, sale yards, feedlots and processing plants. The Land Transport Standards apply to the major commercial livestock species; cattle, sheep, pigs, goats, poultry (broilers, layers, turkeys, ducks, geese), ratites (emus and ostrich), buffalo, deer, camels, alpacas and horses (including horses used for sport and recreation).

Key principles of the new standards and guidelines

- The chain of responsibility for livestock welfare in transport begins with the owner or their agent, and extends to the final receiver of the livestock. All persons in charge at different times must manage to minimise the risk to the welfare of livestock.
- The standards represent a sustainable improvement in livestock welfare and cover most ordinary situations and contingencies experienced during livestock transport under Australian conditions.
- There are 106 standards of which 15 are considered to be non-prescriptive, general standards which are accepted as conveying

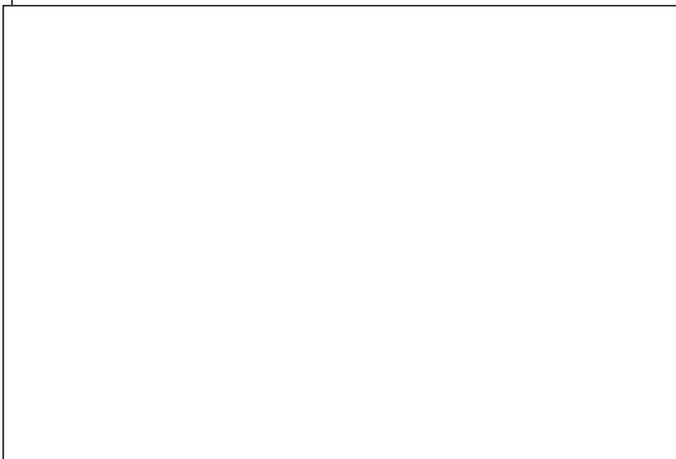
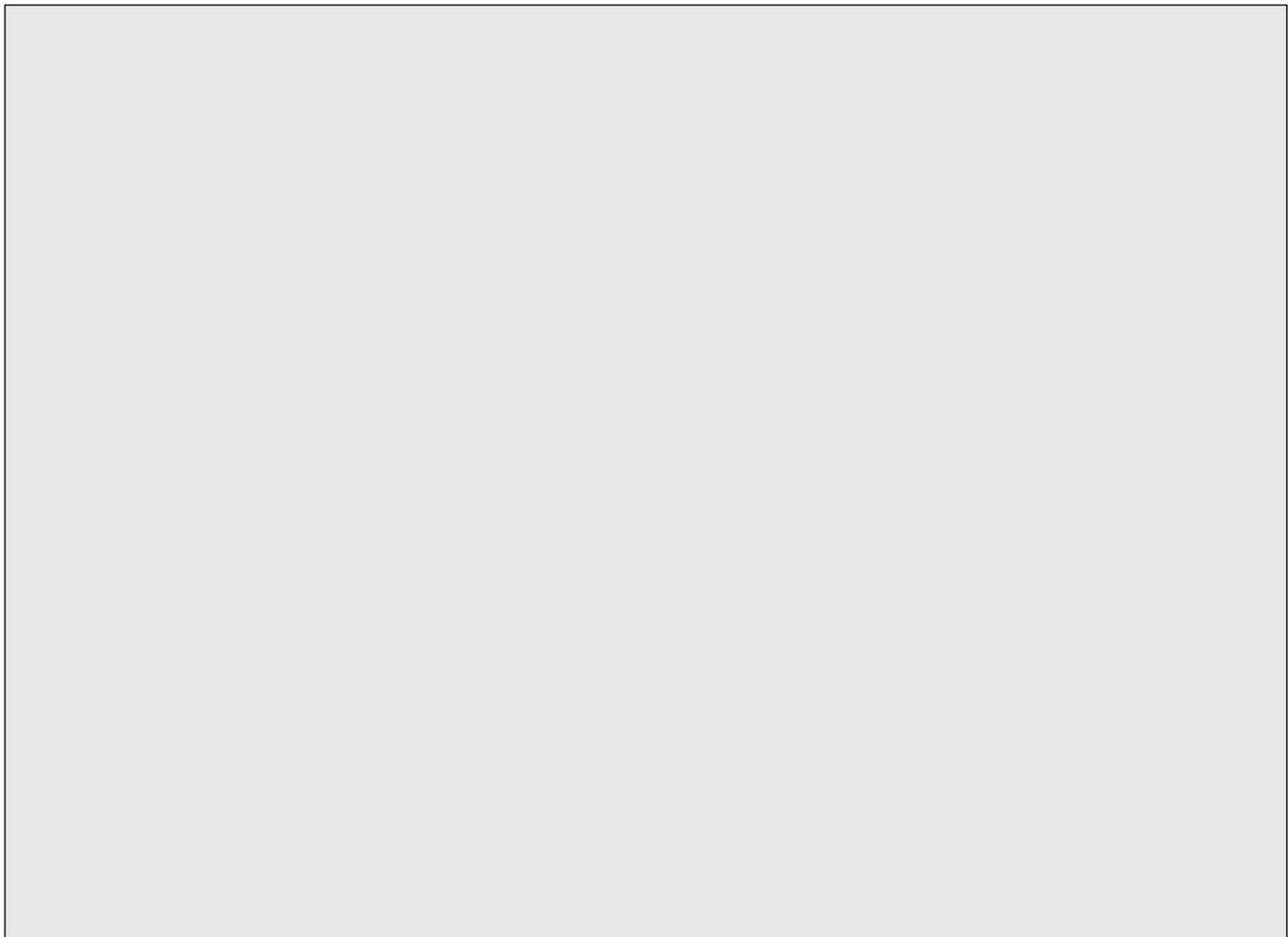
an important message whilst being difficult to enforce.

- The provision of water is a key requirement and the central basis for the standards.
- Standards on livestock handling and humane destruction have relevance for other times besides transport.
- Where other legislation requires a higher welfare standard than these standards, the higher standard will apply. E.g. the Australian Standards for the Export of Livestock. Where there is a conflict with other legislation in meeting the livestock welfare standards, the welfare of livestock must be the first consideration unless there is an occupational health and safety requirement.
- The document is written in a 'plain English' approach with key terms further defined.

For more information visit www.animalwelfarestandards.net.au or www.animalhealthaustralia.com.au.



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