NSW DPI

The Drumstick is produced by officers of NSW Department of Primary Industries for people involved in the Poultry Meat Industry

the drumstick

Summer 2013–2014 | Vol 31 No 3

Welcome

Welcome to the Summer 2013 edition of the Drumstick newsletter.

The poultry industry, meat and eggs, took some hard knocks in 2013. The most notable of these were the Avian Influenza outbreaks in October 2013.

The announcement by Woolworths to go cage free by 2018 and to supply only RSPCA accredited fresh chicken meat by 2015 was another challenge to both industries which are grappling to keep up with changing consumer demands.

It's no doubt that animal welfare will remain on the agenda for the foreseeable future and the industry will need to adjust and innovate to ensure that animal welfare is not only a top priority but that it actively demonstrates it's welfare standards and outcomes to consumers and retailers alike. The Poultry Model Code of Welfare is up for review and will dominate the agenda of many industry meetings in 2014.

Despite these challenges and opportunities the poultry industry in Australia continues to grow and to meet an ever increasing demand for poultry meat and eggs.

This edition of the Drumstick has a strong focus on disease and animal health. It includes articles on fly control, ILT, water sanitation and much much more.

Finally, I would like to take this opportunity to say a thank you to all of our advertisers in the Drumstick, particularly those who have been loyal to this magazine for many years. Without our advertisers there would be no Drumstick. So please, support those who support you.

Best wishes for 2014.

Best Wishes
Byron Stein
Editor

inside this issue:

PROfarm goes online 2
Drumstick GuidePost 3
The do's and don'ts of controlling flies on poultry farms 7
Chlorine dioxide versus chlorine – why the change and what's the difference? 16
Measuring water sanitation – don't be fooled by parts per million 18
Notifiable poultry diseases in NSW 21
Cracking myths and hatching ideas 23
Infectious Laryngotracheitis 24
Don't take your back-up generator for granted – tips and hints 27
PIX 2014 – a stack of new stuff on offer 28
Industry news 29–34
Red flag issues 34
The Drumstick Marketplace 35

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.

ADVERTISING

1300 copies of The Drumstick are distributed each edition. We welcome advertisements and offer very competitive rates. Contact Joanne Ottaway for more information.
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PROfarm goes online

PROfarm online delivers training right to your desktop, offering convenience and easy access at a time that suits you. Rather than attending at a fixed time, you can view your training material online at any time - from any internet connected computer.

Our learning material is relevant to industry, intuitive and provides opportunity for collaboration and interaction with other students and peers.

While you are enrolled in the course you are able to login as often as you like, starting and stopping your course to suit your own schedule.

The enrolment process

Once enrolled in one of our courses the education advisor will contact you within five working days to:

- introduce the course
- walk you through the log-in

This will help you to become comfortable with the online training system and aware of the training and assessment process.

PROfarm

What training is available?

Available online courses include:

- Develop a whole farm plan
- Develop and review a farm business plan
- Maintain farm safety
- Manage soils
- Manage staff
- Prepare budgets and financial reports

How do I enrol?

You can either:
Enrol online at www.dpi.nsw.gov.au/agriculture/profarm/registration/online

Or get in touch with one of our education advisors:
Tocal College, CB Alexander Campus
Phone: 1800 025 520
Email: profarm@tocal.com

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/policy_committees/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

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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.	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/environment/landuse-planning/agriculture
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.inghams.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

The do's and don'ts of controlling flies on poultry farms

By Byron Stein, Editor

This article is based on a primefact written by Dr Garry Levot from NSW DPI. You can get a full copy of the primefact at www.dpi.nsw.gov.au/agriculture/livestock/health/general/controlling-flies or by searching on the internet for 'Controlling flies on intensive livestock farms' using your favourite internet search engine.

A recent outbreak of flies in 'biblical proportions' on a poultry farm in NSW led to major issues for the poultry farmer and for his neighbours. Complaints from 'less than impressed neighbours' were made to council, DPI, the LHPA and other agencies. What made this case particularly concerning was that the fly 'outbreak' was in winter, not a typical time for large fly numbers.

So what might have caused this and what could the farmer have done to quickly knock down the fly problem and stop his telephone ringing hot with loud angry voices on the other end?

This article aims to provide guidance on how to control nuisance flies by briefly outlining:

1. the main pest fly species and some of their characteristics
2. how biological control agents can be protected and encouraged
3. how farm management can be modified to reduce fly breeding
4. how and when registered insecticides should be used for optimal effect.

Nuisance fly numbers can quickly build up when they have access to litter, spoiled feed and bedding material. Depending on the situation several species may be involved. Most are just an annoyance to stock and workers but those that bite can irritate animals such that production may be affected. There may also be a risk of disease transfer associated with fly plagues. Primarily however, the presence of large number of flies can irritate farm workers, affect produce, cause neighbours to complain and affect the reputation of the farm, so good farm management must include effective fly control.

Some level of fly infestation is inevitable on poultry farms but fly numbers in pest proportions usually indicate a failure in one or several key areas of farm management. The most common reasons are:

- inadequate manure management
- excessive moisture levels in and around sheds
- failure to clean up spilled or spoiled feed or soiled straw bedding
- poor management of compost piles
- ineffective use of pesticides - using the wrong insecticide at the wrong time of year against the wrong fly species, or overusing chemical pesticides leading to resistance
- lack of understanding of fly breeding habits
- poor maintenance of buildings or services such as watering systems

One of the most important tips in effective fly control is: 'know which ones you are dealing with'. Not all flies are made equal, and one of the most important lessons is to know which fly, or flies, you are dealing with. This is especially important because house flies have developed resistance to some insecticides whereas other common nuisance flies have not. Failure to select the most effective treatments is likely to lead to poor fly control and wasted money and effort.

False stable fly

Drone fly

Blow fly

So who are the contenders?

The following table lists the most common fly species associated with poultry farms. It includes the three major fly pest species as well as six of the minor or occasional fly species which may sometimes also cause problems when conditions and seasons suit them.

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Table 1. Major and minor fly species of poultry farms and their characteristics

Major fly pests			
Name	**Time of year when most abundant**	**Breeding cycle**	**Comments**
False stable fly (*Muscina stabulans*)	Late winter until mid-summer. It is most abundant in mid-spring	Females lay eggs into moist manure. Maggots hatch 11–18 hours later, feed on the manure and then pupate (form a cocoon-like structure from which adult flies emerge) in the drier manure. Adult flies emerge from pupae after another 14 days or so.	The presence of this species in winter is indicative of a serious fly problem that is likely to worsen in spring unless a control strategy is put in place immediately.
Lesser house fly (*Fannia canicularis*) Smaller and slimmer than the house fly and rests with its wings overlapping.	Spring/summer	Development time from egg to adult is about two weeks during spring/summer	Spends much of its time in flight. In poultry sheds it commonly circles above the caged birds or in the eggs rooms. Maggots of the lesser house fly have numerous spines along the body giving them a hairy appearance whereas false stable fly and house fly maggots are smooth. Its presence in winter is indicative of a serious fly problem that requires immediate intervention.
The house fly (*Musca domestica*)	May be present throughout the year but is most abundant from mid-summer to early autumn, when the false stable fly and lesser house fly have virtually disappeared.	Development from egg to adult fly takes about 10–12 days under optimum conditions.	House flies can breed successfully in compost, lawn clippings, or any decomposing vegetable matter, as well as in most animal manures.
Minor or occasional pests			
Name	**Time of year when most abundant**	**Breeding cycle**	**Comments**
Black carrion fly (*Australophyra rostrata*) Shiny black fly similar in size to the house fly	It is most abundant in spring/summer	Has a development time of about 14 days.	Shiny black fly similar in size to the house fly that usually breeds in animal carcasses.
American soldier fly (*Hermetia illuscens*)		Female flies lay eggs in the drier areas of manure and the maggots feed for about two weeks before reaching full size (20 mm).	Occasionally becomes very numerous in poultry sheds. Large numbers of soldier fly maggots can cause manure cones to liquefy and collapse. Unlike other species which are a nuisance as adult flies, it is the maggots of the soldier fly that are the destructive pest against which control should be directed. In these situations so called maggot 'hot spots' can be directly targeted with topical insecticidal sprays

Name	Time of year when most abundant	Breeding cycle	Comments
Common blowfly and flesh fly species		Female flies must have access to protein to mature eggs	All breed in carrion such as dead birds and so long as dead animals are removed regularly are unlikely to be breeding on the farm.
The drone fly (*Eristalis tenax*) Resembles the adult honey bee, both in appearance and behaviour.		The so-called 'rat-tailed' maggots are found in wet areas such as drains contaminated with manure, or manure pools caused by leaking taps or watering systems.	Presence of drone flies indicate inadequate site drainage and pooling of wet manure. If these conditions occur in an animal shed it is likely that there are also areas where the major fly pests are also breeding.
Stable fly (*Stomoxys calcitrans*)	They are most common during summer and autumn	Larvae commonly breed in damp or spoiled feed, damp straw bedding or in manure.	Suck blood from people and from animals. The long, pointed mouthparts of these flies can bite through clothing. The bites are painful and can cause localised skin reactions.
The bush fly (*Musca vetustissima*) The bush fly resembles the slightly larger house fly but unlike the house fly, does not enter buildings.	In NSW, bush flies are present only in spring and summer.	Outdoor pest that breeds in damp cattle dung but at certain times of the year may be present in large numbers around intensive livestock facilities	Adult bush flies seek moisture from the eyes, nose etc. of people and animals.

As noted previously, it is really important to know which of the above flies is bugging you and your birds to effectively control the flies and ensure you get the best results. Like you, I'm no fly expert, and one fly looks about the same as every other one splattered on my swatter. So how can you realistically figure out which of the above flies is causing you issues. I asked Dr Garry Levot for some advice.

According to Garry, "In springtime it is most likely to be the stable fly (*Muscina*) which is the bigger and slightly brown fly and the lesser house fly (*Fannia*), which is smaller, black and constantly flying in circles. By mid-summer the house fly (*Musca*) turns up. It is smaller than the stable fly and bigger than the lesser house fly. The stable fly pretty much disappears by mid-summer. Whereas most entomologists might, as a matter of course, not leave home without their butterfly net, I know that very few chook farmers share their enthusiasm for catching bugs. For these people I guess the best option is to pick flies out of fly bait trays (use gloves to avoid touching insecticide), put them in a plastic sample jar and send to: Entomology Enquiries, Orange Agricultural Institute Locked Bag 6006 (1447 Forest Road) Orange, 2800".

Once I know which flies I am dealing with, what can I do about them?

Fly control can only be achieved by an integrated pest management approach. This essentially means doing a range of things rather than sticking to just one control method, which is seldom effective on its own.

Four basic principles apply:

1. It is impossible to eradicate all flies, so control practices are directed at reducing fly populations to tolerable levels.
2. There are many beneficial insects and mites that assist in fly control. The control provided by these is called natural, or biological control and is free! Good farm management will preserve these beneficial predators and parasites.
3. A good standard of farm management will reduce fly populations and the need to use insecticides. Good management includes general farm hygiene, maintaining healthy animals, trimming grass around sheds, cleaning up spilt feed around storage areas and animal sheds, reducing moisture in and around buildings by controlling water run-off, guttering, drains and maintaining leak-free stock watering systems.
4. Despite all management effort, under certain environmental circumstances fly numbers can increase considerably. This occurs most often in spring when false stable flies multiply but may also occur during warm, wet summers when the excess moisture prevents manure drying and favours rapid fly breeding. At these times insecticides may be needed to reduce the population of flies to tolerable levels.

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Biological control – bugs versus flies

There are a range of bugs that do a great job on nailing fly eggs and larvae and can be a very effective part of an overall management strategy.

Predatory beetles

Among the most common predators are the beetles *Carcinops pumilio, Creophilus erythrocephalus* and *Alphitobius diaperinus. Carcinops* adults and larvae are commonly seen in manure searching for fly eggs and larvae. Adult beetles will eat up to 24 fly eggs per day.

Carcinops pumilio (Histeridae)] *Creophilus erythrocephalus*

The Devil's Coach horse (*Creophilus*) beetles are very active predators of fly maggots in intensive livestock facilities. They are also very commonly seen feeding on maggots in carrion.

Predatory mites

These are 'good mites' and shouldn't be mistaken for poultry red mites or northern fowl mites that are blood-sucking parasites of hens.

The predatory mites are found in the manure and on adult flies. They are not insects but are beneficial organisms closely related to spiders that feed on fly eggs and very young fly maggots. Three families of these mites are represented in poultry sheds: Macrochelidae, Uropodidae and Parasitidae.

As manure accumulates, parasitids are the first group to arrive, followed by macrochelids and finally uropodids. The *macrochelids* are often very abundant in poultry manure. The female mites attach to flies for transportation to new areas. Substantial reduction in fly numbers because of macrochelid mite predation has been demonstrated. Whereas the *macrochelids* are active on the manure surface, *uropodid* mites feed on larvae deep within accumulated manure.

Parasitic wasps

These are all tiny wasps belonging to the families *Pteromalidae* or *Chalcididae*. One of the most commonly used of these wasps is *Spalangia endius. Spalangia* are tiny wasps (2 to 3mm long) that are naturalised to Australia. They are parasites of certain fly species, including the house fly and stable fly. *Spalangia* are harmless to other insects and to all vertebrate animals including humans.

Pteromalidae

Depending on species, female wasps deposit one or many eggs into pupae or full-size fly maggots. By their feeding the wasp larvae that hatch from the eggs destroy the developing fly and emerge from the fly puparia as adult wasps three weeks later. Parasitism rates as high as 40% have been recorded.

Under normal conditions a balance is reached between flies and the predators and parasites that naturally regulate population size such that flies do not reach pest levels. For this reason it is essential that the preservation of beneficial organisms be considered in farm management and especially when using insecticides. Increases in the populations of predators and parasites always lag behind those of the pest and are usually at a slower rate than those of the flies. Complete removal of accumulated manure can also remove many of the predators and parasites. If you remove manure from all rows, leave a pad of manure 2–3 cm thick to help preserve the predatory beetles and mites and the parasitic wasps.

One of the commercial suppliers of biological control agents is Dan Papacek from Bugs for Bugs. They have a great website which will give you far more details about the bugs they have to control flies, when and how to use them and their costs. Check out their website at www.bugsforbugs.com.au.

Use of insecticides

There are dozens of chemical insecticides registered for use in and around sheds to control nuisance flies. These products can be segregated into different insecticide classes depending on the active ingredient they contain. They can also be segregated on the basis of how they are formulated. For example, there are wall sprays, fly baits, a feed additive and topical manure sprays. Each product has particular properties, which means that the effectiveness of each product will differ depending on the species of fly present, shed construction or the timing of the insecticidal application. For example, some fly bait products contain a pheromone that is only attractive to house flies. Smooth, impervious walls such as galvanised iron will retain a surface treatment well whereas insecticide sprays applied to concrete walls are much less effective.

Depending on the product chosen, baits can be scattered on the ground or mixed with water and painted on surfaces, however, it is preferable to sprinkle baits onto damp hessian contained in dedicated bait trays that can be deployed where most effective.

For the current list of registered products go to www.infopest.com.au or check the Australian Pesticides and Veterinary Medicines Authority website www.apvma.gov.au. Always follow the instructions on the product label including the precautionary advice on the use of personal protective clothing.

Total reliance on insecticides for fly control is unsustainable and has a number of disadvantages. Apart from the financial cost of the products, there are costs in terms of time and labour, occupational health and safety considerations and the capital investment and maintenance costs for spray equipment etc.

There are two major risks associated with excessive or inappropriate use of insecticides:

- Insecticides also kill the beneficial insects and mites, particularly parasitic wasps. This reduces the effect of biological control and can create a persistent fly problem.
- Insecticide resistant flies may eventually build up in the population.

Insecticide resistance

When a new insecticide is first used against an insect pest such as the house fly, the population of the pest in the treated area is drastically reduced if the product has been applied correctly. However, a small proportion of individuals that have a greater ability to withstand the effects of the spray will survive. These insects may survive and breed, resulting in a rapid increase in fly numbers. Under this scenario many producers will apply multiple insecticide treatments. With each treatment, the proportion of survivors will increase until the insect population is largely unaffected by the insecticide.

Research has shown that Australian house fly populations contain flies resistant to several insecticides, whereas false stable flies and lesser house flies are not yet resistant. This means that if the wrong insecticide is used resistant house flies are likely to survive a spray or bait treatment and continue to breed. Differences in susceptibility to the various registered insecticides among the common fly species means that control strategies should take account of the fly species targeted by selecting product(s) that are most likely to have maximal effect. To reduce the risk of resistance developing it is wise to rotate the use of insecticides to minimise fly exposure to any single insecticide class. This can be achieved by alternating the use of products belonging to unrelated insecticide classes irrespective of whether a wall spray or a fly bait is chosen. Just remember to ensure that you are using the right mix of pesticides registered for use for the fly species you are trying to control.

For more information, contact Garry Levot at garry.levot@dpi.nsw.gov.au

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Chlorine dioxide versus chlorine – why the change and what's the difference?

Byron Stein, Editor

Some material in this article is adapted from the National Water Biosecurity Manual Poultry Production (2009).

One of the large national processors recently required some growers to change from using conventional chlorination to chlorine dioxide for sanitising their bird water supplies. This article explores what some of the reasons for this change might be by looking at the differences between conventional chlorination and chlorine dioxide.

So what is chlorine dioxide?

Chlorine dioxide is a greenish-yellow gas which easily mixes with water. Because chlorine dioxide is a relatively unstable gas it cannot be transported and sold in its pure form and must be generated on site. It is therefore supplied as a chemical compound in either stable liquid or solid form. This stable liquid or solid is then mixed with another chemical (sometimes called an activator) at the site of the water treatment. The chemical reaction of the liquid or solid product and the activator produces chlorine dioxide.

How effective is chlorine dioxide in sanitising water?

Chlorine dioxide is extremely effective and is one of the most powerful water sanitising agents available. It is highly effective in killing bacteria, viruses, protozoa, spores, yeasts, moulds and other disease causing organisms.

How is chlorine dioxide different to chlorine (sodium hypochlorite or calcium hypochlorite)?

Although both chemicals have the chlorine in their names they have very different chemical structures. This means they have also have different properties. It's these properties which make all the difference when comparing the two chemicals.

Are you telling me chlorine is not an effective water sanitiser?

No, that's not what I'm saying. Chlorine is a very effective water sanitiser, and has been used for many years with very good effect. However, the effectiveness of chlorine is very much dependent on water quality and pH. Chlorine is also far more reactive in water and is more prone to lose it's effectiveness over time than chlorine dioxide.

Another way of thinking about this is if we consider chlorine to be a very friendly, happy chemical. As soon as we add it to water it has a tendency to bind and react with many other chemicals in the water. Once this happens its chemical structure is changed and it becomes less effective in killing viruses and other diseases. Chlorine dioxide on the other hand is less friendly and tends to stick to itself. This means there is more chlorine dioxide in the water to attack and kill viruses, bacteria and other organisms.

I have been told that chlorine dioxide is better at killing avian influenza than chlorine…is this true?

No and yes. Both chemicals are very effective at destroying avian influenza viruses. However while chlorine dioxide remains effective in a range of water pH values and in variable water quality, chlorine becomes less effective as pH rises and as water becomes more contaminated with organic material and other chemicals, including ammonia.

In other words, chlorine dioxide remains effective under a wide range of water quality conditions while chlorine is 'fussier' and is effective only if water is relatively clean and the pH of water is below 7.5.

Key and important differences between chlorine dioxide and chlorine

1. Water quality

Chlorine dioxide is much less sensitive to poor water quality than chlorine.

This means that chlorine dioxide is more effective as a sanitiser in water of variable quality. Chlorine is effective when water is relatively free of other chemicals and contaminants such as salts, organic material, silt and dirt and other water contaminants. As water quality declines, then so does the effectiveness of chlorine.

Chlorine dioxide is also more effective in cleaner water, but can cope with more water contamination than chlorine can.

2. Water pH

Water pH is the measure of how acid or alkaline water is. Chlorine dioxide is much less sensitive to water pH than chlorine is and can operate in a relatively broad range of pH levels (pH 5 to 10).

Chlorine is much more sensitive to pH and becomes less effective as pH rises, in other words, as water becomes more alkaline (greater than pH 7.5).

3. Speed

Chlorine dioxide is a more powerful sterilising agent than chlorine and has a much faster sanitation rate, especially as water pH rises.

4. Biofilm

Biofilm is the layer of slime containing bacteria and other organisms that build-up on the insides of water pipes and equipment. This layer of slime protects bacteria and other disease causing organisms from sanitisers and chemicals. Chlorine dioxide is able to penetrate the biofilm and effectively remove it from your water system. Chlorine is not able to do this.

In summary

Chlorine and chlorine dioxide are both excellent water sanitising agents. Whilst chlorine dioxide is more powerful, chlorine still produces good results and will kill the key pathogens of concern to the poultry industry.

However, chlorine's weakness is that it is only truly effective under relatively narrow conditions. If your water is pretty clean, free of natural organic matter, low in salts and ammonia and other chemicals, then chlorine is a relatively cheap and cost effective sanitiser.

Chlorine dioxide however is a safer bet. Chlorine dioxide lasts longer, is effective in a range of water qualities (although is still most effective in clean water) and a range of pH ranges and crucially can penetrate and remove biofilm in water lines and equipment.

Measuring water sanitation – don't be fooled by parts per million

Byron Stein, editor

Adapted from the National Water Biosecurity Manual, Poultry Production (2009).

If you are measuring the level of a particular sanitiser in the water as an indicator of how 'clean' the water is (e.g. chlorine at 1 to 2 parts per million, PPM, at the drinker level) you might be way off track, and you may wrongly assume your birds are protected.

Why might measuring chlorine in PPM at the drinker level be a problem?

When measuring chlorine in ppm at the drinker level you are measuring total free chlorine in the water. This measure is made up of two forms of chlorine. But not all chlorine was made equal, with one form (hypochlorous acid) of chlorine being an excellent water sanitiser, and the other form (hypochlorite ion) being relatively hopeless. The proportion of these two forms of chlorine depends on the pH of the water and the water quality. This essentially means that if the water is clean, and the pH is low (under 7), then measuring ppm of chlorine may be OK.

But,….if the pH is high (more than 7), the ppm level might be the same, but the chlorine will be in a form (hypochlorite ion) that isn't nearly as good at sanitising the water.

Another way of thinking about this is if you imagine chlorine wearing two different kinds of shoes. What shoes the chlorine wears will depend on what the water pH is. Under pH 7 (in more acidic conditions), chlorine

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wears runners and can race around killing pathogens quite effectively. However above pH 7 chlorine wears gumboots, and is pretty slow and sluggish and isn't as effective at killing pathogens. However, when you measure for chlorine in ppm, you have no way of knowing what shoes chlorine happens to be wearing at the time.

So, PPM could be misleading and very much depends on how clean the water is and what the pH of the water is.

What is the best way to measure how 'sanitised' my water is?

Measuring the oxygen reduction potential (ORP) of the water is the most effective measure of water sanitation. Rather than reading the level of sanitiser, which may be in a form that may or may not be working, ORP is a measure of how effective the sanitiser is in killing microorganisms.

Determination of the ORP has become the procedure of choice for monitoring, and can be performed with incorporated systems or a hand-held apparatus. The quality of the testing unit should be evaluated prior to purchase. ORP, measured in millivolts (mV), operates much like a digital thermometer or pH probe and ORP sensors allow easy monitoring and tracking of critical disinfectant levels in water systems. ORP for water system monitoring provides the operator with a rapid and single-value assessment of the disinfection potential of water. Research has shown that at an ORP value of 650 to 700 mV, spoilage bacteria and bacteria such as E. coli and salmonellae are killed within a few seconds. Other microorganisms such as protozoa and viruses are inactivated over longer contact times, generally measured in minutes.

The ORP is a valuable tool where water quality is poor. For example, where water pH is high, measurable chlorine levels may be high but the level of active sanitising agent, hypochlorous acid, may be below effective levels, resulting in an ORP measurement significantly below 650. The routinemeasurement of ORP in mV is not a linear relationship at typical use rates. In chlorine sanitation systems, increasing pH will lower the ORP and decreasing the pH will increase ORP, reflecting the increased availability of hypochlorous acid. In 1972, the World Health Organisation adopted an ORP standard for drinking water disinfection of 650 mV. At this level the sanitiser in the water is active enough to destroy harmful organisms almost instantaneously.

Monitoring sanitised water is not straightforward. Technical assistance should be sought to ensure that your water testing method is accurate and takes into account your sanitation method and local water supply chemistry and quality. This advice should preferably come from a competent technical advisor.

Notifiable poultry diseases in NSW

Sixteen poultry diseases are notifiable under NSW legislation. This means that there is a legal obligation to notify authorities if you know or suspect that your birds have one of these diseases.

Who has to notify?

Poultry growers, veterinarians, company servicemen or other persons who are consulted about poultry, are required to notify authorities if they know or suspect birds have a notifiable disease.

Notification obligations are detailed in section 9 of the *NSW Stock Diseases Act 1923*, and in section 7 of the *NSW Animal Diseases (Emergency Outbreaks) Act 1991*. You can view the Acts at www.legislation.nsw.gov.au

By remaining vigilant and notifying as soon as you suspect a notifiable disease, you can play a vital role in protecting the poultry industry and preventing disease spread to other animals and possibly to humans.

Why are certain diseases notifiable?

Most notifiable poultry diseases are diseases that are exotic to Australia, for example, virulent Newcastle disease, infectious bursal disease (IBD) and highly pathogenic avian influenza (bird flu). If established here, such diseases could impact severely on trade, human health, poultry production or the environment.

Many of these diseases are subject to an international obligation to notify if any cases occur. Others are notifiable because of an agreement between jurisdictions in Australia.

A few diseases that already exist in NSW are notifiable because there is a disease control program in place or because livestock or their products have to be certified in terms of disease.

Table 1: List of notifiable and emergency animal diseases of poultry in NSW

Notifiable disease	Also listed as an emergency animal disease
Avian influenza	Yes
Avian paramyxovirus	Yes
Duck virus enteritis (duck plague)	No
Duck virus hepatitis	No
Fowl typhoid (*Salmonella gallinarum*)	Yes
Infectious bursal disease (hypervirulent and exotic antigenic variant forms)	Yes
Japanese encephalitis	Yes
Newcastle disease	Yes
Turkey rhinotracheitis (avian metapneumovirus)	Yes
West Nile virus infection	Yes
Chlamydiosis in poultry and other birds	No
Egg drop syndrome (EDS 76)	No
Infectious laryngotracheitis	No
Pullorum disease (*Salmonella pullorum*)	No
Salmonella enteritidis infection in poultry	No
Tuberculosis	No

What diseases are notifiable?

The list of notifiable poultry diseases are listed in Table 1. In addition to being notifiable, some of the diseases listed are also classed as emergency animal diseases.

How to notify?

If you or your veterinarian suspects a notifiable emergency animal disease you should immediately notify an Inspector in one of the following ways:

1. Call the emergency animal disease hotline – 1800 675 888 – which is monitored 24 hours a day.
2. Phone a Livestock Health and Pest Authority (LHPA) district veterinarian or ranger;
3. Phone a NSW Department of Primary Industries (NSW DPI) veterinarian or regulatory officer.

Notifications for notifiable non-emergency diseases can be made in one of the following ways:

1. By notifying on-line at www.dpi.nsw.gov.au/agriculture/livestock/health/general/notifiable-animal-diseases-nsw/animal-disease-form; or
2. By fax or email, by filling in the NSW notifiable animal disease form available on the NSW DPI website or from an NSW DPI office and faxing it to (02) 6361 9976, or emailing it to: biosecurity@dpi.nsw.gov.au; or
3. By phoning a LHPA or NSW DPI Inspector.

Where can I get further information?

For further information about notifiable animal diseases, you should contact your local LHPA district veterinarian (note: the LHPA will become part of Local Land Services from 1 January 2014), a NSW DPI veterinarian, or your processor's veterinarian.

Cracking myths and hatching ideas

Tanya Nagle, WPSA Competition Coordinator

Seventy high school students from south-east Queensland recently joined with poultry industry representatives to celebrate the completion of the 14th annual World's Poultry Science Association Schools' Poultry Education Competition. A total of 45 schools from Queensland, New South Wales and South Australia undertook school-based poultry projects designed to crack a few urban myths about modern poultry production.

The competition attracted a variety of research subjects, ranging from the affect of feed and housing systems on egg quality, to a comparison of the growth rates of male and female broilers, saving the school canteen and using poultry litter to improve water infiltration of soil.

Each school submitted their top two reports and posters which were judged by industry representatives. Schools then attended the awards and careers day where prizes are presented. Interactive demonstrations were held by industry representatives as well as presentations on the chicken meat and egg food chain, the range of career roles in both and pathways into the industry. The day finished with an industry sponsored barbeque lunch that was enjoyed by all.

Competition co-ordinator Tanya Nagle said the competition aimed to correct a number of misconceptions about the poultry industry, including the perceived use of hormones which have been illegal for over 40 years, and to demonstrate to students the wide range career options available in the poultry industry. "The poultry industry is the most technologically advanced of all Australia's animal industries and as a result the industry must place a high importance on providing our younger generation with industry information and a structured career path that will attract and retain a skilled workforce now and into the future," Ms Nagle said.

Students and Industry guests enjoying the barbeque lunch at the WPSA Schools Poultry Education awards day.

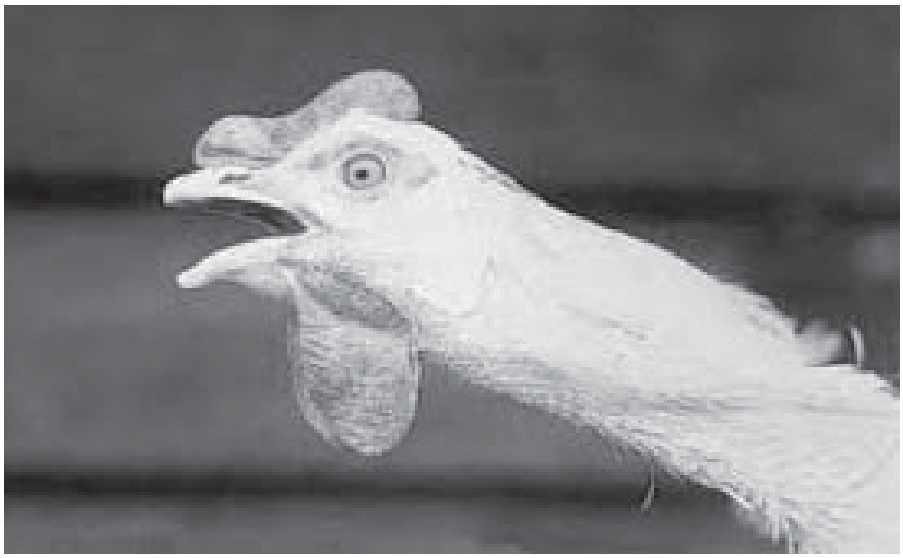
Redlands City Deputy Mayor Alan Beard, Competition Co-ordinator Tanya Nagle, DAFF Technician Tellisa Kearton and Queensland Chicken Growers Association President Jodie Redcliffe at the Awards and Careers Day, at Redlands Research Facility.

2013 winners

		Queensland
Senior	1st	Ferny Grove State High School
Middle	1st	Genesis Christian College
	2nd	Faith Lutheran College - Plainland
	3rd	Gordonvale State High School
Junior	1st	Dakabin State High School
		New South Wales
Senior	1st	Oakhill College
Middle	1st	Wyong High School
	2nd	Narara Valley High School
	3rd	Denison College – Kelso High
Junior	1st	Bundarra Central School
		South Australia
Middle	1st	Xavier College
Junior	1st	Lucindale Area School

Infectious Laryngotracheitis

Adapted from the Queensland Department of Agriculture, Fisheries and Forestry. For a link to the article on their website go to: www.daff.qld.gov.au/animal-industries/animal-health-and-diseases/a-z-list/infectious-laryngotracheitis



Infectious laryngotracheitis (ILT) is a contagious respiratory disease that is characterised by gasping, neck extension and conjunctivitis (inflammation of the membrane around the eye).

ILT is a notifiable disease because it is similar to the early stages of virulent Newcastle disease. If owners, vets, laboratory staff or others suspect this disease, they must report it to their local biosecurity response agency in their respective state or territory.

Cause

ILT is caused by a virus that can live for 8 to 10 days in droppings and up to 70 days in carcasses; hence correct disposal is essential. The virus may survive for up to 80 days in tracheal exudate (throat exudate) if not disturbed. This demonstrates the importance of sound clean-up procedures and high-pressure hosing.

Susceptible species

ILT affects fowls, pheasants and turkeys. Water fowls (ducks and geese) show no signs but ducks have been known to carry ILT for up to two weeks. Wild birds may act as carriers.

Signs

Early signs may include bouts of hard swallowing, ruffled feathers on the back of the head, squinting and the watering of one or both eyes (conjunctivitis).

After the incubation period of 3–14 days (though 5–12 is most common), increased mucus forms in the trachea, often followed by tracheal haemorrhage (bleeding). This causes the bird to cough and extend its head in a characteristic manner to breathe. In some cases, only mild respiratory signs are visible but one eye may completely close.

The classic signs are gasping, coughing, and extending the neck forward and upwards with each breath to clear the mucus in the trachea (windpipe). In fact, many birds die from this disease due to suffocation, as the windpipe becomes completely blocked. There has been up to 70 per cent mortality in acute cases.

There is a marked variation in the pathogenicity (potency) of various virus strains. Three major forms are known:

- **Peracute.** This has a high mortality of up to 70 per cent. Severe respiratory signs of rales (rattles in the throat), gasping, coughing with expulsion of blood or blood-stained mucus are visible, and the bird is very depressed. On post mortem, acute haemorrhagic inflammation of the trachea and larynx is present, and the lumen (centre) of the trachea is blocked by mucoid blood clots and, sometimes, yellow caseous exudate (cheesy plug-hard pus). Death is normally by suffocation
- **Subacute.** This has a high morbidity (sickness) rate but a lower mortality rate of 10–30 per cent. There are less severe respiratory signs of rales, coughing with expulsion of caseous matter, mucoid nasal discharge, gasping and infra-orbital sinus swelling. There is often conjunctivitis with severe lacrimation (eye discharge) and eyelids matted together. On post mortem, mucus, which may be bloodstained, is found with membranes in the upper respiratory tract. Death is normally by suffocation
- **Mild or chronic.** This has a low morbidity (sickness) rate of 5 per cent. The bird is drowsy with signs of conjunctivitis, squinting eyes and bronchitis combined with a cough. There is often a concurrent infection with coryza. Egg production may drop 10 per cent. On post mortem, false membranes are seen in the upper respiratory tract, which may cause death.

Transmission

The ILT virus is released from the respiratory tract and followed by rapid airborne transmission among birds in close contact, such as cage

or pen mates. The virus enters the bird through the eye, nose or mouth. The coughed-up mucus and blood contains the virus and is another way that the disease quickly spreads.

In the past, most outbreaks have been traced to the movement of poultry, people and equipment. However, if environmental conditions are suitable, windborne spread may also be a factor.

The virus depends on a transporting agent to spread. The virus is not transmitted through the egg, so chickens are not infected at hatching. The virus can be spread via the following means:

- The introduction of infected birds. This includes the introduction of affected birds, carrier birds or birds that are incubating the disease at the time of introduction. Carriers of the wild strains of ILT can shed the virus at times of stress, infecting susceptible in-contact birds
- People and contaminated equipment. These can introduce infection into any flock. Contaminated crates and feed trucks are known sources of infection. People who are in contact with infected birds and, on the same day, with susceptible flocks may transfer the disease if they do not take suitable precautions
- Airborne spread. ILT's airborne spread depends on the prevailing conditions. There is rapid airborne transmission among birds in close contact. The virus often requires mechanical transfer to cove r even short distances, such as from one building to another. However, birds in sheds close to roads may even be infected by diseased birds being transported down the road. Under conditions such as cloud cover, humidity, showers and gusty winds, the ILT virus can easily cover 500 metres and possibly much further. Small feathers and shed dust are ideal transporting agents
- Litter and manure. The ILT virus can survive in the birds´ environment for periods of time, and transmission may occur when susceptible birds are placed in a recently contaminated but uncleaned environment.

Infectious period

Eye-vaccinated birds usually start to show signs on days 3 to 5 and normally finish shedding virus by days 11 or 12.

Wild or field strains cause the birds to shed virus over a longer period than vaccine strains. Again, the period of shedding depends on the incubation time, which is usually longer than for vaccine strains (up to 14 days). The length of the shedding period depends on when the last birds in the building became infected.

This situation can be short-circuited by vaccination; however, a resultant carrier state, where the bird appears normal but may shed virus when stressed, is established in many birds.

The virus can survive for 10 days or more in droppings and up to 70 days in carcasses. The virus lasts longer in winter due to the cool temperature. The virus may survive up to 80 days in tracheal mucus on non-conductive material such as wood. One per cent lysol or three per cent cresol will inactivate the ILT virus in less than a minute.

Sunlight, heat and desiccation (drying) are the three natural enemies of the ILT virus.

Diagnosis and control

Acutely affected birds show free blood in the trachea, which is generally associated with a mucus plug that inhibits normal breathing. The symptoms rapidly spread throughout the flock.

Birds with subacute and mild infections may show only slight difficulty in breathing and perhaps a mild watering of one or both eyes. However, the disease can still be easily transmitted from one bird to another. A mild ILT infection may look like any other respiratory or viral infection.

Laboratory diagnosis will always be required to determine whether the ILT virus is present.

ILT may be controlled by:

- management practices, including quarantine, the isolation of introduced birds and no introduction of stock to farm (not practical for show poultry). However, this does not guarantee protection
- vaccination. Annual vaccination protects all birds. Eye-drop vaccination is normally carried out at 7–10 days and again at 8–12 weeks.

Similar diseases

- Newcastle disease
- infectious bronchitis
- fowl cholera
- infectious coryza
- fowl pox (wet pox)
- chronic respiratory disease
- vitamin A deficiency
- avian influenza

Treatment and prevention

Antibiotics have no effect on the virus. Vaccination and the vaccine's short incubation period is used to halt an outbreak.

The disease is prevented by vaccination. Because ILT is similar to early exotic Newcastle disease, it is maintained as a notifiable disease.

The virus is not transmitted through eggs, so chickens are not infected at hatching.

City Generators - full page ad

Don't take your back-up generator for granted – tips and hints

Having a reliable standby power supply can be the best insurance policy you have.

Whether it's a manufacturing operation, chicken farm, hospital or emergency response centre, running your operation efficiently means having ultra-dependable standby power at the ready to keep your services up and running and minimizes expensive downtime.

In standby power applications diesel engines comprise the vast majority of prime movers because of their reliability, durability and performance under load.

Diesel generators can start and assume full-rated load in less than 10 seconds, and if maintained correctly they typically can go 20,000 hours or more between major overhauls. In a standby application which traditionally operates no more then 500 hours per year the life of the set could be in excess of 30 years.

Your system is only as good as its weakest link.

Some important questions you need to consider are:

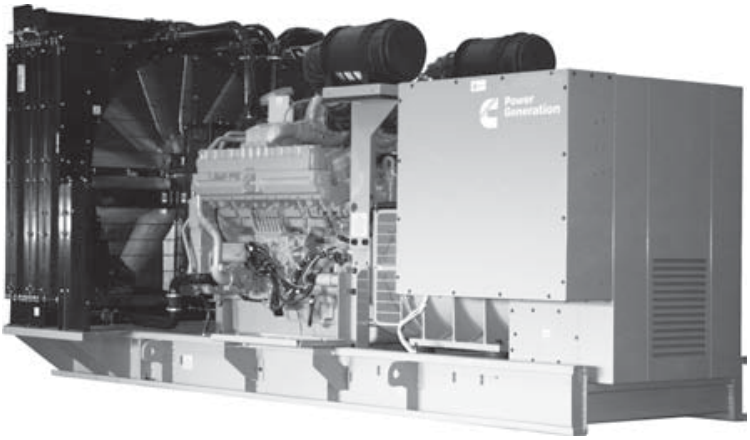
1. What condition are your start batteries in?
2. What is the ambient temperature capability of your set? Will it perform in a 35 degree plus day?...Many systems won't!
3. What is the condition of your fuel being stored? If it is over 2 years old you better find out.
4. When was the last time the system was proved under a full load test?

If you know the answer to these few basic questions and the overall condition of your system then you are well on the way to having a reliable well maintained standby power installation. If you don't know the answers to these questions then you are gambling with the cost of your investment you're trying to protect.

With this in mind it's not only cost effective but imperative that when purchasing and installing a new or used standby system that the correct engineering is applied at the time of purchase and installation.

Correct sizing and application engineering together with a complete preventive maintenance system will ensure reliability, minimizing repairs and reducing long term costs.

By following generally recognized diesel maintenance procedures and specific manufacturer recommendations for your application, you'll be assured that your standby power system will start and run when you need it most.



PIX 2014 – a stack of new stuff on offer

2014 Poultry Information Exchange (PIX2014) in conjunction with AMC
2014 Gold Coast Convention and Exhibition Centre
Sunday 25 May–Wednesday 28 May 2014

It's hard to believe that PIX 2014 is just around the corner. Just like Christmas it sneaks up and before you know it, you're in Broadbeach on the Gold Coast, flicking through your programme wondering which talks and displays to go to next.

Talking of talks, I asked Rod Jenner from the organising committee what PIX had in store for punters in 2014,

"The keynote speakers we have lined up include:

1. Federal Agriculture Minister, Barnaby Joyce will be opening the conference and giving his views on the future of the industry and the issues confronting us
2. President of the National Farmers Federation, Brett Finlay, to speak on their "Blueprint for Australian Agriculture"
3. Geoff Frost from the Australian Centre for Food Integrity speaking on "Building Consumer Trust and Confidence in Today's Modern Australian Food Systems"
4. Peter Wilkinson from Two Sisters in the UK speaking on "UK experiences with real outcomes of increased welfare standards".

There are also meat chicken sessions devoted to animal welfare, biosecurity and disease control, food safety, improving productivity, energy and environment.

There will be four workshops also – hatchery, breeders, ask-a-vet, and ask-a-nutritionist, running at various times during the conference.

Litter Management Workshop

We are holding an all-day litter management workshop on the Wednesday which is replacing the tunnel ventilation workshops. This workshop is designed to give everyone, processors and growers alike, a better understanding of causes, ramifications and solutions to litter problems, including wet litter, litter re-use technologies and litter pasteurisation methods. We have a guest key speaker coming from the UK (Mr Alo Mohan) to give us information on how the UK industry learned to cope with the challenges brought on by more stringent welfare standards. This is a highly relevant topic given the recent announcement by Woolworths that they will be moving to RSPCA accredited chicken meat by the beginning of 2015. The RSPCA places very stringent requirements on litter quality, especially wet litter, and growers and others involved in the industry would likely find these workshops incredibly valuable.

We have a fantastic social program line up. The theme of the gala dinner this year is "James Bond – Casino Royale". There is some fantastic showman entertainment lined up for the dinner also.

The trade show is being supported very strongly already, as is sponsorship from industry suppliers. We are predicting the trade show to be at least 10% bigger than last time.

PIX 2014 is shaping up to be larger than ever, and with speakers and workshop sessions which are directly relevant to current industry issues and challenges we encourage as many growers and industry players to attend as possible to help them keep up to date with new systems and innovations designed to increase productivity, profit and performance."

New website to help reduce risk of avian influenza

With recent avian influenza outbreaks front-of-mind, the Australian Egg Corporation Ltd (AECL) have launched a new initiative aimed at reducing the risk of future disease outbreaks among Australia's laying hens. AECL developed the online diagnostic tool called Hen Support, in collaboration with Fractal Solutions, to assist egg farmers identify and solve performance problems and diagnose sick hens before seeking further veterinary advice.

AECL Managing Director James Kellaway said Hen Support would provide egg farmers with important information about hen health issues (including avian influenza) as well as guidance on hen performance 24 hours a day, 7 days a week.

"Avian Influenza cannot be cured with Hen Support but it can help identify the disease. In fact, if used properly and in the right situation, Hen Support could assist in detecting the disease in its early stages," Mr Kellaway said.

"Hen Support provides egg farmers with the opportunity to assess the severity of hen health problems and seek veterinary assistance when necessary. In some instances, Hen Support can pick up early signs of a disease so it can be treated and contained in a rapid and efficient manner. If an egg farmer notices that their hens are not well, the farmer can run the symptoms through a simple set of question on the Hen Support website. Based on the farmer's answers to those questions, the site then provides advice on what could be ailing the hens and what the potential courses of action are, before the farmer sought help from a veterinary surgeon. This could help reduce the risk and spread of avian influenza and other serious diseases in Australia into the future, or at least get on top of a disease a lot earlier," Mr Kellaway said.

Fractal Solutions Managing Director, Dr Santiago Ramirez, said Hen Support could help with rapid identification of diseases, particularly notifiable ones such as avian influenza, so that losses and further spreading was minimised.

"This will ultimately improve the overall health status of the Australian layer flock. Hen Support puts Australia at the forefront of primary production innovation and knowledge extension," Dr Ramirez said.

Hen Support also includes a library that provides straightforward information on over 120 hen health disorders.

"Each disorder is briefly summarised on the site. The site also suggests potential courses of action to fix the problem and prevent them from occurring into the future. For less than $1 per day hen support provides a resource that will assist producers identify possible issues that could be costing them thousands," he said.

Egg farmers are eligible to receive free access to Hen Support (www.hensupport.com.au) for the first 12 months. For further information, please email contactus@hensupport.com.au.

Article courtesy of the ThePoultrySite News Desk, 5 December 2013.
www.thepoultrysite.com/poultrynews/30824/new-website-to-help-reduce-risk-of-avian-influenza

Poultry CRC Announces Chick Embryo Development Animation

The Poultry CRC has announced the release of its latest educational resource - an animation detailing the 21-day development of a chick embryo within the egg.

The two-minute-long simulation has been made freely available on YouTube for anyone who wishes to observe this process, and will be especially useful for educators around the world for years to come. The animation, which is both scientifically accurate and visually beautiful, addresses a number of areas in Australia's national science curriculum.

For younger children, it can be used when teaching life cycles; early high school students can reference it when studying microscopic and atomic structures; and for older students it is relevant as part of the study of the basic units of living things.

Free range egg farms - full page ad

Senior high school students who study biology also study comparative embryology, which includes a comparison of embryos of vertebrates and this short animation will be a useful aid.

A strong emphasis was placed on making sure that the animation was scientifically accurate, and a detailed research phase was undertaken before production began to ensure that the essential salient features were included.

"It was quite a hard task," said Liz Roan, CRC's Education Manager. "We wanted to include enough detail to make the animation useful at Senior High and Undergrad level, while not making it so technical that it would overwhelm the younger age groups. Luckily, the team at AXS, who all hold degrees in Biomedical Communication, as well as backgrounds involving developmental biology, physiology and anatomy, were completely up to the task.

"They were very thorough with their research, cross checking details and referring any ambiguities back to us for our academics to resolve. We've ended up with a product that is everything we wanted; clear, detailed, accurate and interesting."

Thanks to digital animator's AXS studio in Toronto, Canada, the Poultry CRC's dream of an accurate and elegant-looking animation has been brought to life.

"We're hoping that not only will it have a place in school education, but that commercial operations such as hatcheries may find it useful as well," said Ms Roan.

The CRC encourages open sharing of this resource.

Article courtesy of the ThePoultrySite News Desk, 29 November 2013.
www.thepoultrysite.com/poultrynews/30762/poultry-crc-announces-chick-embryo-development-animation

Woolworths will phase out all caged eggs sold in their stores by 2018

The supermarket chain has launched a partnership with celebrity chef Jamie Oliver and says it is working with him to introduce a number of significant changes. As well as phasing out all caged whole eggs by 2018, including those used in Own Brand products, they'll also move to RSPCA, or equivalent approved standards, for all fresh chicken by the end of next year.

The chicken used in Own Brand products will also be RSPCA, or equivalent, approved by the end of 2018.

Woolworths' head of sustainability Armineh Mardirossian says the decision was taken, based on consumer trends.

"We've seen a significant increase over the past five years in the choices that are customers are making in terms of

buying barn and free range, and the caged eggs have seen a decline over the years. The customer is in the best position to decide how they're going to spend their money, and that dictates everything else," she said.

The announcement has been welcomed by animal rights group Animals Australia who say it addresses animal welfare concerns.

"In animal welfare terms, these represent the largest areas of concern in this country with 12 million hens still confined in cages and some 500 million chickens raised for meat each year. Hens have been paying a terrible price for cheaper eggs. It's terrific that Woolworths has acknowledged this and taken an historic ethical stand on this issue," said Animals Australia campaign director Lyn White."

Rival supermarket Coles no longer uses caged eggs in its own brand products, with all Coles brand eggs either barn laid or free range.

John Groenewold from the Tasmanian Commercial Egg Producers Association says producers have little choice but to comply.

"My first reaction is that when elephants start to jump around the ants keep out of the way. With the power of Woolworths, they set their own agenda like Coles do and industry either complies or goes out of business," he said.

Earlier this week consumer rights advocate CHOICE complained shoppers were still being misled when buying eggs.

Spokeswoman Angela McDougall says sales of free range eggs make up 40 per cent of the market, but no-one is really sure what they are getting due to vague labelling laws.

"With free range, consumers have shown a willingness to pay a premium for a higher product . But with the Egg Corporation's own admission we know that producers are probably producing these eggs with standards that probably don't meet consumer expectations", she said.

Animals Australia says regardless, this is exactly what consumers want. Spokesperson Lisa Chalk says others retailers should be taking the same lead as Woolworths.

"This is an historic day for animal welfare in Australia and we are really hoping that other retailers will follow suit."

Article courtesy of the ABC news, www.abc.net.au/news/2013-10-04/nrn-woolies-caged-eggs/4998380

Poultry importers fear new quarantine centre could lead to exotic disease outbreaks

Large scale poultry importers say a new quarantine centre to be built in Melbourne's north could lead to an increase in exotic diseases such as bird flu. The $300 million centre will be built at Mickleham replacing five outdated quarantine centres across four states.

Large poultry companies say the project could compromise Australia's biosecurity leading to disease outbreaks and even encouraging smuggling.

Daniel Gowland and his family are based at Bungendore, near Canberra, and have been importing and breeding birds for more than 30 years. Mr Gowland says exotic diseases such as bird flu are a constant threat. He is one of many in the industry who are concerned about biosecurity measures at the new centre.

"A lot of these avian diseases will come across to humans. If we get nailed, the Australian ecosystem that is by far the greatest tragedy in this whole little drama," he said.

The quarantine centre was approved by a federal parliamentary committee and will replace five outdated facilities at Eastern Creek in New South Wales, Knoxfield and Spotswood in Victoria, Torrens Island in South Australia and Byford in Western Australia. The centre will house all kinds of animals including dogs, cats, alpacas, thoroughbred horses and even bees. But the birds have been the biggest problem.

A coalition of five major importers that supply the poultry industry told the parliamentary committee the design of the centre is flawed. The companies said the importation of birds and eggs at the same site could lead to cross contamination and disease outbreak.

"The consequences of failure at this level could cripple the business and even the industry," the importers said.

An independent panel of experts was called in to advise the parliamentary committee and found the design of the facility "has the necessary features to ensure bio-containment of an exotic disease outbreak."

Expert avian vet Peter Scott was on that panel.

"Clearly the Torrens Island group has been a little bit unhappy and they have been concerned about some potential biosecurity aspects there. But these concerns have been explained to them and I'm very confident that the measures the Government have in place will allay those concerns."

He says the quarantine chambers will use air filtering, waste management and strict staff protocols to contain any disease outbreak.

The Federal Department of Agriculture says the co-location of birds and eggs is common overseas, and has been used successfully at CSIRO facilities in Australia for more than 25 years. It also says the new centre provides industry with three times the capacity currently available.

Article courtesy of ABC news, www.abc.net.au/news/2013-12-16/importers-raise-biosecurity-concerns-over-new-quarantine-centre/5159724

Retracom - full page ad

Red flag issues

ASPCA tackles US poultry org on welfare guidelines

The American Society for the Prevention of Cruelty to Animals (ASPCA) has written to the National Chicken Council explaining its efforts dedicated to improving the welfare of chickens raised for meat in the US.

The welfare group claims to have research showing that the current unprecedented growth rates and standard living conditions of chickens not only pose serious concerns for their welfare, but may also present food safety risks. In the letter, the welfare organisation urges the NCC, which will release new guidelines for chicken welfare before the end of this year, to update their guidelines with meaningful recommendations to address welfare concerns related to both growth rate and husbandry, reflecting the values and expectations of chicken consumers.

"Genetic selection for more breast meat and faster growth has led to inactive chickens with insatiable appetites, suffering from higher rates of heart failure, low stamina, laboured breathing and lameness. Overcrowding due to excessively high stocking densities," the open letter said.

"The ASPCA's description of poultry production in the United States is not based on fact and in no way represents the realities of modern poultry production or the health and welfare of today's chickens," said Tom Super, National Chicken Council vice president of communications in response. "The US national broiler flock is incredibly healthy and is the envy of the world. Mortality and condemnation rates for broilers, the most sensitive indicators of the health and well-being of any flock, are at historical lows.

In fact, if we reverted to the way we used to raise chickens several decades ago, the mortality rate for chickens would increase 490%. Because of better nutrition, breeding, genetics, veterinary attention and technology, which include optimum growing conditions within climate-controlled barns, it takes less time for chickens to naturally reach market weight – all without the use of hormones or steroids. A common misconception, broiler chickens are never caged and free to roam within barns, interact, and eat and drink at will.

"From a pure business standpoint, it would make zero business and economic sense for a farmer to do anything to a bird that would harm it. The birds are their livelihoods and chicken producers want to do everything possible to keep them healthy. To assist chicken producers and processors in this effort, the National Chicken Council developed the NCC Animal Welfare Guidelines and Audit Checklist which have been widely adopted within the industry. Periodically revised, this year's updates will cover every phase of a chicken's life and will offer the most up-to-date, science-based recommendations for the proper treatment and humane care of broiler chickens."

Article courtesy of World Poultry Nov 15, 2013

NSW Farmers applies for ACCC authorisation

NSW Farmers Poultry Meat Manager, Ray Lee has advised that NSW Farmers is finalising an application to the Australian Competition and Consumer Commission (ACCC) to allow it's members to collectively bargain with processors.

Mr Lee says that NSW Farmers are making the application to give its members greater surety that they will continue to be able to collectively bargain should the Poultry Meat Industry Act 1986 be repealed in NSW.

Currently the Poultry Meat Industry Act gives all growers the ability to collectively bargain. However the Act is currently under review by the NSW Government.

Mr Lee said that while NSW Farmers has not received any news of the outcomes of the review into the Act, they want to ensure their growers aren't exposed should the Act be repealed. The ACCC authorisation will only apply to NSW Farmers members, and will include both current and future members.

"We sought a waiver of the application fee which is approximately $7000 and this was recently agreed to by the ACCC" said Mr Lee.

According to Mr Lee the application will be finalised and lodged in early January 2014.

"We anticipate that the process will be completed by the end of March 2014" said Mr Lee. The application will cover all NSW Farmers member growers for the four NSW based chicken and turkey meat growers and will also include growers for Pepe's ducks.

A national standard to reduce pathogen load in poultry, and foodborne illness

The Primary Production and Processing Standard (PPPS) for Poultry Meat is a national standard developed by Food Safe Australia New Zealand (FSANZ) to strengthen food safety and traceability from paddock to plate, and reduce foodborne illness from Campylobacter and Salmonella by lowering the incidence of these two pathogens in raw poultry.

These pathogens are two of the most commonly reported causes of foodborne illness in Australia, with poultry the vehicle for 30% (83,100) of Australia's annual campylobacteriosis cases (Stafford et al,2007) and 8% (6480) of salmonellosis cases. (FSANZ Final Assessment Report Proposal 282, 19/3/2010)

While many factors contribute to foodborne illness, overseas studies show that strategies put in place on-farm and at primary processing to lower both the prevalence and concentration of Campylobacter and Salmonella in poultry meat, have resulted in a lowering of campylobacteriosis and salmonellosis in humans. New Zealand saw a 50% reduction in cases of campylobacteriosis as a result of its intervention strategy (FSANZ report 2010).

The Authority spoke at four seminars organised by NSW Farmers in April 2013, providing growers with background information on the standard, what they need to do to comply, and the opportunity to ask questions.

Compliance requirements

Poultry growers are the main businesses impacted by the standard in NSW. Those growing more than 100 birds (at any time) now need to be licensed with the Authority, have a Food Safety Management Statement (FSMS), and follow a farm inspection program.

An FSMS sets out how the business complies with the standard. It includes examining, identifying, controlling, and verifying the potential food safety hazards. Medium and large processors develop the FSMS for their farms and contract growers. The Authority is assessing these company FSMS' for compliance with the standard before any on-farm inspections commence.

A free template FSMS for small independent poultry growers is on the Authority's website. This will be assessed during the inspection to ensure it meets the requirements of the standard. During the inspection, the officer will use a checklist that includes construction and maintenance; hygiene and sanitation; stockfeed; pesticides and veterinary medicines; and pest control.

Contract growers

At inspections of contract growers, the officer will check that the processor's FSMS is being used, available on site, internally audited by the processor, and the conditions at the farm match the requirements in the FSMS and internal audit outcomes. A representative from the processing company may be present during these inspections. If any area is found to be deficient, the officer will record it as a defect. Depending on the nature of the defects and their possible impact on food safety, the officer will determine if the result is acceptable or not. An unacceptable result is where significant food safety issues are found on farm. Given that most farms have long been operating under a company quality assurance program, the Authority is expecting most results to be acceptable.

Defects that are controlled by the processor will be taken up with them, not the contractor. The officer will discuss defects with the grower and provide a report. For contract growers, a copy of the report will also be sent to their processor. If an inspection is unacceptable, a follow up inspection will be conducted to see if defects have been rectified. These visits will be charged to the business. The Authority applies a graduated approach to non-compliance issues in accordance with its Compliance and Enforcement Policy available on the website.

For more information visit the NSW Food Authority website at www.foodauthority.nsw.gov.au

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