

What is Salmonella?

Salmonella is a bacteria that can be found on many farms. Chickens carry the bacteria in their bodies, and pass Salmonella into the yolk and white while eggs is being formed in the ovaries. Bacteria can also be deposited on the eggshell—and through the shell pores into the inner egg—when the egg is laid.

Despite a common belief, cracked eggs are not generally responsible for Salmonella problems. An intact shell does not guarantee safe eggs. The key is good on-farm hygiene practices with rodent control, clean nest boxes, clean grading and packing facilities and adequate cool storage. Eggs should be clean when they are laid and regular collection and good handling practices prevent the spread of bacteria.

Any part of the egg can harbour bacteria, and both whites and yolks have been implicated in food borne illness. However, the yolk is the most common source.

Chickens can be infected with salmonella bacteria from their environment, which is easily contaminated by rodents, birds and flies. These carriers deliver the bacteria to all types of egg farms whether they're cage, organic or free-range. The totally controlled environment of cage systems probably makes the problem less likely as long as feed, water storage and egg handling facilities are up to scratch.

Once the bacteria get inside the chickens, the micro organisms thrive under ideal temperature and conditions.

When the eggs have been laid, multiplication happens fast if the eggs aren't cooled quickly. And if there's a lapse in cleaning practices or an undetected outbreak among the chickens, the percentage of affected eggs can increase rapidly.

Salmonella bacteria can double every 20 minutes under ideal conditions. In an hour at room temperature, two bacteria could become 32. At two hours, there may be 1,000 organisms. At eight hours, there can be millions in one egg.

One of the big problems for consumers at markets is that eggs are often transported halfway across the State and are not kept in temperature controlled conditions. The eggs may leave the farm on Thursday or Friday for deliveries in Melbourne and some may not be sold until a Sunday market.

If those eggs are well cooked, they should present no problem – but if they are eaten raw or in an undercooked form, gastroenteritis is often the result.

Issues surrounding food safety on egg farms are often ignored. It seems that the only time there is any focus is after an outbreak of disease or food poisoning traced back to eggs.

There are clearly many factors involved in maintaining poultry health and producing great, clean food. Cleanliness is a great starting point – clean sheds, clean nest boxes, wholesome feed and clean water. Adequate cleaning procedures are vital as is controlling dust, vermin and ensuring good ventilation in sheds.

Stocking densities are a substantial issue as each hen produces about half a cubic metre of manure a year, faecal contamination is likely to be a major salmonella risk factor in high density sheds. Do the maths, if you have 6000 hens in a shed, that's 1500 cubic metres of manure in the shed each year assuming the hens are only in the shed for 12 hours a day. The build up of manure provides a top host site for all sorts of nasties which can affect the health of hens and cause gastro problems with contaminated eggs. With 1000 hens per shed, that's still 250 cubic metres of manure a year. That's one of the many reasons we run flock sizes of 200 -300. Poultry health and egg are under greater threat as flock numbers rise. Large flock sizes and significant numbers of laying hens in sheds, often means that there is likely to be a high level of floor eggs - which increases the probability of contamination. That appears to have been the cause of the most recent salmonella event in Victoria.

But it's not just the threat of salmonella contamination – the only outbreaks of avian influenza in Australia have been on intensive poultry facilities.

The establishment of intensive production systems masquerading as 'free range' presents a great risk factor for the industry. Flock size and shed densities are vital issues.

Here's some detailed info:

<http://onlinelibrary.wiley.com/doi/10.1046/j.1462-2920.2001.00213.x/full>

Freeranger Eggs 2014