

Smarter chook shed design powers efficiencies



Four of the new cemented-walled sheds with enclosed beams have been built on the Little River farm. James Porteous

With some simple assessments, any industry can make common sense changes to standard practices to significantly improve its environmental footprint – and probably the bottom line. The chicken growing industry is a great case in point. When Victorian grower, Con Kyriazis, teamed up with civil engineer Stavros Rekaris to find a smarter chicken shed design, they made some basic changes using simple materials, and are now producing major energy savings – as well as happier chickens.

For a chicken farmer, keeping the chirping stock growing contentedly requires the responsive control of optimal temperature, air speed, light and feed conditions inside the large sheds that commonly house between 35 000 to 40 000 chickens each. Chicken farms therefore use appreciable amounts of power and gas, which are generally the heaviest running costs. With over 800 commercial chicken farms across Australia, the total energy demand from the

industry is significant.

With more and more higher-quality but lower-cost chickens being demanded by customers, and by extension the chicken supplier companies, tougher performance conditions are being set for growers and their sheds. To tackle these when building his operation at Little River near Melbourne, Con Kyriazis employed the structural engineering perspective of HS Rekaris and Associates.

‘One immediate issue was that conventional tunnel-design sheds, that use foam filled freezer panel walling, begin to deflect under pressure when trying to meet the high requirement for internal air speeds of 2.5 plus metres per second to keep chickens cool,’ Kyriazis says. ‘This not only makes feeders and drinkers uneven, stopping efficient pellet and water delivery to the stock, but it’s a nightmare for conditions control.’

They also noticed that the standard U-beam supports in sheds, that couldn’t handle the stress, were also badly designed

to collect dust, make cabling difficult, and channel rodents across to help themselves to feed.

The simple, pivotal solution was to break with tradition and use concrete panel walls and fully enclosed, galvanized steel beams. Perhaps only someone outside the industry could have seen the full benefits, but there were big ones.

‘The logic was not just about much more solid sheds that could handle the required air pressure,’ Stavros Rekaris says. ‘Although more expensive at first, concrete walling’s thermal and insulation properties are very stable compared to polystyrene-filled freezer panel, keeping sheds at a much more even temperature despite big fluctuations in weather outside. The support and power structures for the shed can now go outside, and the stronger internal closed beams are carrying the cabling and not the rats or dust.’

This of course means much better overall energy efficiency from the fans, heaters, and feeding equipment that work 24/7 in the sheds.

‘I’m getting power and gas savings of up to 50 per cent, and using 20 to 30 per cent less chemicals,’ Kyriazis says.

‘Although the upfront materials and labour costs of the concrete walls are much higher, I won’t have to rebuild the sheds for 50 years, they don’t rust, they just hose out, and I don’t have to spend such big money on maintenance, anti-bacterial or the insecticide to get rid of black beetles and rats which eat the freezer panelling and carry diseases.’

Glen Campbell, National Farming Manager of Baiada



Stavros Rekaris (left) and Con Kyriazis. James Porteous

Poultry, who provides and then collects Con’s chickens, gave input to the design and is impressed.

‘We’ve had to set some very high specifications for sheds in Australia,’ he says. ‘Most growers I see fall short of them. Con now has the only concrete-walled sheds in the country, and they easily meet the 2.5-metre per second wind speed requirement. In fact, he’s easily capable of 3.5 metres per second. This means much lower stock mortality. We’re getting excellent, quality chickens back, for lower costs.’

Kyriazis is very happy with his return on effort so far, and is committed to finding other ways to improve economic results with more sustainable measures.

‘I’ve already had great results from disinfecting the shed floors with Elgas flame instead of more chemicals that I don’t know the effects of,’ he says. ‘Down the track we’ll consider rainwater capture and recycling from the roofs to use less town supply, and possibly biogas or solar panels on the sheds for power. We could probably sell excess power back to the grid.’

● James Porteous

Contacts:
Con Kyriazis, Parkhurst Farms, conkyriazis@aol.com
Stavros Rekaris, HS Rekaris and Associates, stavros@rekaris.com.au