

SUMMARY OF THE ECONOMIC ANALYSES ON THE DRAFT LAYER HEN CODE OF WELFARE

This note summarises three economic analyses of the effects of prohibiting the use of conventional cages for egg production in New Zealand. In considering the significant impact of this change on all egg producers the Egg Producers Federation (EPF) commissioned two independent reports: *Economic Impact of a proposed revision to the Code of Welfare for Layer Hens* by Nimmo-Bell, and *Egg Market Dynamics – An Investigation into the Impact of Changed Production Requirements* by LECG. The Ministry of Agriculture and Forestry (MAF) conducted its own analysis titled *Review of the Animal Welfare (Layer Hens) Code of Welfare: Draft Economic Analysis for Consultation*. The three analyses can be found at: <http://www.biosecurity.govt.nz/regs/animal-welfare/stds/codes>

This summary provides an overview of the method, main assumptions and results of each analysis. After a brief overview, the report provides an indication of the total cost of moving to a housing system that provides hens with better welfare. It also highlights some of the practical considerations associated with re-homing approximately 90% of the national laying flock, as well as the issue of how this move might affect the price and availability of eggs.

It is important to note that the estimates of financial and economic impact have been calculated under the assumption that producers who currently use cages will adopt colony systems. Industry experience and NZ and international research indicate that moving to a 'loose housing' system such as barns or free range would involve higher costs.

Overview

The EPF commissioned Nimmo-Bell to examine the impacts on the egg producing industry of a ban on cages. Nimmo-Bell surveyed farms of their likely response to a ban and looked at the impacts of the cost of change on farms financial situation. The Nimmo-Bell report was prepared to assess farm-level impacts based on the assumption that cost increases would not be able to be reflected in a price increase. With higher costs and constant prices, profits are lower. Nimmo-Bell suggests that, even with up to 20 years to make the change, a ban on cages would not be feasible for a number of properties as cash flows may not allow conversion and some investors would prefer to exit the industry and do something else rather than make lower profits.

The EPF also commissioned LECG to look at the possible impacts on the egg market, specifically whether cost increases would be reflected in higher prices. The LECG analysis considers potential short term volatility in price and quantity supplied due to the increase in space requirement and an estimated change in costs associated with the change in code. It does not make firm estimates of the long term impact.

MAF used Nimmo-Bell's analysis, and considered the impacts on the long-run market price and quantity of eggs produced. In MAF's model, as costs rise, some farms decide to exit the industry. This decrease in the supply of eggs increases the price of eggs for farms that remain in the industry. MAF estimates how much supply would need to decrease by (and how many farms would need to exit the industry) to generate a price increase that leaves remaining farms with profit levels similar to existing ones.

The capital cost of the industry converting from cage to colony systems is somewhere between \$150 million and \$45 million dollars. In broad terms, the increase in annual costs, in the long term, are estimated at being between 10% and 14%. This is likely to be reflected in a corresponding increase in the cost of eggs to consumers.

The timeframe over which required changes are implemented will ultimately affect both producers and consumers. A short timeframe could lead to more capital redundancy and greater price variability, particularly in the short term. The longer the timeframe allowed for change to occur the less significant these impacts are likely to be.

On farm impact

The Egg Producers Federation estimated that just under 90% of the eggs produced commercially in New Zealand come from hens that are housed in conventional cages. Transitioning from cages to colony systems requires significant capital investment in new cages and sheds. To accommodate the larger colony systems, farms may do any mix of building new sheds, renovating existing sheds and building new sheds to house displaced birds, or decreasing the number of birds they farm.

Significant costs to farmers are therefore two-fold:

- the additional capital cost of colony systems, including additional shed space
- the cost of replacing existing cages before the end of their useful life.

Colony systems cost approximately \$29 per bird compared with a cost per bird of \$20 with caged systems. The additional shed space required for colony systems costs approximately \$20 per bird. Both Nimmo-Bell and MAF assume that the impact on variable costs like feed and labour remain largely unchanged. Securing resource consent is estimated to cost an additional \$21,000 per farm.

Nimmo-Bell surveyed layer hen farms using cages, and developed models for three representative farm-types based on size of operation. They then developed a most likely response for each of the small, medium and large sized farms. Based on their analysis, the amount of money farms would have to borrow or find elsewhere to finance a change to colony systems (including purchase of additional buildings and equipment) ranges from \$660,000 for small farms to \$8,500,000 for large farms.

One factor that influences the on-farm cost of transitioning to colony systems is the economic life of the housing equipment. Industry practice indicates cages last 20 to 25 years and sheds last 25 years. The Nimmo-Bell analysis uses a life expectancy of 25 years for sheds and cages. MAF's analysis uses 25 years for sheds and eight years for cages, with longer cage life expectancies of 20 years and 25 years tested in the sensitivity analysis. If cages require replacement with colony systems prior to the end of the useful life of the cage the cost to the producer increases significantly as they are effectively incurring capital expenditure earlier than they would otherwise need to.

The model farm analysis conducted by Nimmo-Bell indicates that the large and medium size farms will be able to meet the financial requirements of the transition provided they have a timeframe of at least 15 years and that cash surpluses generated over this period are committed to reinvestment (assuming that investors are willing to do so). The small farms will have difficulty

meeting the financial requirements of the transition over 15 years. However they may be able to achieve conversion in an 18 to 20 year period, although this will remain difficult.

In all cases, introduction of the proposed changes to the code results in significant loss of cashflow to farm owners. The cost increases significantly for those producers with newer cages and is reduced significantly with an increased timeframe allowed for conversion of existing cages.

Market impact

For the purposes of its analysis Nimmo-Bell assumes that prices do not increase and it has not considered any market impact. MAF estimates that over time some farms will exit the industry causing the quantity of eggs produced and consumed to decrease by 10% to 13% depending on timing of implementation. MAF also estimates that the price will increase by between 10% and 14%. The increase in price makes the cost of change affordable for farms that remain in the market.

Additional modelling suggests that the transition to this new long-run equilibrium may be marked by short term price volatility, particularly if the timeline for the transition is short or producers find it difficult to source funding for the new housing systems. For example, if the national laying flock contracts by 26% due to space constraints imposed on changes to alternative systems by existing shed space, then price increases could be in excess of 30% in the short term. Although producers who remain in the industry will benefit from these higher prices, further price volatility could be expected as consumers look for relatively cheaper sources of protein and producers with access to finance consider expanding their operations.

The LECG report predicts that a transition to colony systems will lead to an increase in the price of eggs, and a reduction in the quantity of eggs produced. In the short term, the LECG report indicates that prices could increase by up to 100%, particularly if producers were required to adopt the new colony systems rapidly. While the market may eventually settle at a new equilibrium with prices approximately 10% – 14% higher (consistent with the MAF analysis) interim short-term price volatility triggered by production constraints has the potential to create a high degree of uncertainty for both producers and consumers, and alter the existing structure of the industry.

Total cost

The economic analyses suggest that the total cost of moving from cages to colony systems is likely to range from \$150 million to \$45 million. The estimates are affected by a variety of assumptions such as the timing of the ban, the impact of the transition on the price of eggs, and the resulting industry structure. The assumptions are detailed in the full documents. The total cost is greater for an earlier transition partly because it involves producers disposing of an asset which still has a useful economic life and partly because the cost of new equipment begins accruing sooner.

Who bears the cost?

Nimmo-Bell's analysis compares the farms' cashflow under the current code of welfare to the farms' cashflow under a code of welfare that requires colony systems. In this analysis farmers

continue to operate despite low profits and sometimes negative cashflows. As a consequence, the results reflect a reduction in cashflow for egg producers who must invest in additional housing for hens without compensating price increase. Under this assumption, producers pay for the economic cost of the transition in the form of lower profit and reduced asset values.

MAF's analysis assumes that some producers would exit the industry, either because they cannot secure the funding they need for the transition to colony systems, or because they are concerned about future profitability. This exit is predicted to increase the price of eggs, and restore an economically acceptable level of profit for producers who remain in the industry. As a result, consumers pay for the economic cost of the transition in the form of higher prices for eggs. In the long term MAF estimates that there will be fewer producers, and that consumers will pay 10% to 14% more for eggs.

Other issues of transition

The economic analyses consider only the impact of increased costs on farms and the egg market. A further question is what farms need to do in order to physically make the transition to colony systems. If the new Code requires a rapid transition to colony systems, farms may not have enough time to implement new Code requirements. The resulting capital redundancy and/or supply restrictions would increase the total costs to both producers and consumers. Farms need sufficient time to redesign their operations and undertake the following:

- purchase or lease additional land, if required;
- allow hens in current systems to reach the end of the laying cycle (i.e. up to 70 weeks);
- secure resource and building consents;
- secure finance;
- source and install new colony systems (including construction of new sheds, if required); and
- train staff.

Summary

The market for table eggs in New Zealand is highly competitive. A move to colony systems is likely to require over \$100 million in capital expenditure by farms. Not all farms will be able to sustain these costs and some will decide, or be forced to, exit the industry. MAF estimates that, over the long term as farms exit, the quantity of eggs produced and consumed could decrease by between about 10% and 13% and the price could increase by between about 10% and 14%. Greater price volatility may be experienced in the short run, particularly if producers are required to make a rapid transition to colony systems.

MAF estimates that the cost of the proposed change to colony housing systems is about \$15 million per year. Initially, the cost will be borne by producers, who must convert to colony systems. In the longer-term, however, price is assumed to increase, passing the economic cost of the new housing system on to consumers.

Farms, however, cannot make the change to colony systems overnight. Farms need enough time to plan changes to their systems, secure resource consent and financing, source new equipment, and train staff.

The full reports are available at <http://www.biosecurity.govt.nz/regs/animal-welfare/stds/codes>