

Alternative Layer Hen Housing Systems in Europe

Executive Summary

Prepared for
Alberta Egg Producers
and
Alberta Farm Animal Care Association

In November 2004, Dr. John Church and Michelle Jendral toured research and production facilities in the Netherlands, Switzerland and Sweden and attended the World Poultry Congress in Germany. This is a summary of their findings.

**ALBERTA EGG
PRODUCERS**

AFAC
ALBERTA FARM
ANIMAL CARE

April 2005

Michelle Jendral
PhD Candidate
University of Alberta

Executive Summary

Alternative housing systems for laying hens are designed to balance the health and welfare of the hen, with the needs and well being of the producer, the consumer, the industry and the environment. Systems are typically evaluated on their ability to provide adequate space for movement and exercise, an environment that allows hens to express natural behaviours, and a setting where aggressive interactions are minimized. Simultaneously however, issues such as productivity, labour requirements, air quality, hygiene, hen and worker health, and system costs must also be adequately addressed. Not surprisingly, a system capable of completely satisfying all of these needs has yet to emerge. However, a number of systems that have attempted to maximize the advantages offered by alternative housing, while minimizing adverse consequences, have been developed and successfully implemented in Europe, and improvements to these systems are ongoing.

European consumers adopt a progressive and proactive approach towards animal welfare and food safety, and by demanding specific products, have a considerable impact on the type of housing systems implemented by producers. Regional welfare directives and legislative policies, which are also influenced by public opinion, may further determine which housing systems are permissible and will provide acceptable welfare and production results under the conditions stipulated. The availability of different alternative housing systems provides producers with flexibility when choosing the system that best balances their overall goals and needs, with market demand and legislative requirements. The European initiative to adopt more welfare-conducive layer hen housing systems may ultimately impact layer housing practices worldwide, and an evaluation of the European experience is essential to facilitate this transition.

This document provides an overview of alternative layer hen housing systems in Europe, with particular emphasis on developments in the Netherlands, Switzerland and Sweden. Recent changes to layer hen housing legislation in Germany, and the consequences of these changes for the German egg industry are also addressed. By examining the individual markets, circumstances that led to a shift from conventional layer hen cage housing to alternative systems, challenges faced and successes experienced,

insight is gained as to the steps that can be taken to guide Canadian producers in the transition to alternative layer housing systems. Many of the principles outlined in this document are also applicable when adopting changes intended to improve the welfare of all agricultural species.

The European Union (EU) was originally founded in 1950, to initiate an integration of democratic European countries and develop a stable and prosperous international market. Member states are required to adhere to the fundamental laws of the EU. To implement minimum EU directives, each member country passes national legislation. The EU has also introduced a Common Agricultural Policy and direct support programs for EU members to ensure quality and safety of food products, guarantee farm incomes, protect the environment and sustainable production, and ensure compliance with animal welfare standards.

In 1986, the EU commission proposed its first set of standards (86/113/EEC) for the keeping of hens in battery cages. These were revised in 1988 (88/166/EEC) to provide more specific guidelines regarding space allowances in battery housing, provisions for eating and drinking, and cage shape and design. However, EU Scientific Veterinary Committee (SVC) evaluations of hen welfare in battery cage systems were unsatisfactory, and a debate ensued within the European parliament concerning a ban of the battery cage. Discussions were fuelled by pressure from the public and animal welfare organizations. While the SVC was also critical of many aspects of alternative housing systems, the committee ultimately concluded that the welfare of the laying hen was inadequately served in conventional cage systems. In 1999, 13 of the then 15 member countries approved a new directive (1999/74/EC) that would prohibit investment in new conventional systems after 2003, and ban their use after 2012. All cage systems would be required to provide nest sites, perches, litter facilities and claw shortening devices, and to increase cage area to 750 cm² space per hen. Specifications regarding space requirements and maximum stocking densities were also provided for non-cage alternative housing systems. In 2002, the Commission adopted a trace system for EU egg production units, requiring producer registration, and labelling of eggs with a distinguishable country code, trace number and a farming method code. Organic production is represented by the number 0, free range systems by the number 1, barn rearing by the number 2, and all cage system

eggs are labelled with the number 3. The EU has also formulated directives to control food borne zoonoses such as Salmonella. Regulation (EC) No 2160/2003 concerns the control of salmonella and other specified food-borne zoonotic agents and stipulates minimum sampling requirements for agricultural species and food sources. The EU also contributes funding for national compensation programs. Today the EU is comprised of 27 member states, all of which are required to implement the minimum directives stipulated by EU legislation.

The Netherlands was one of the original 6 countries to join the EU in 1950. In spite of its extremely small land base and high population density, this member state is the largest net contributor to the EU, and is among the world's top agricultural exporters. The Netherlands leads Europe in proactive policies that strive for sustainable agriculture and environmental protection, and this progressive approach is also apparent in the Dutch concern for animal welfare. Even prior to implementation of the EU directive (1999/74/EC), the Dutch government encouraged producers to convert conventional battery cage systems to alternatives such as deep litter and aviaries. Beak trimming is also prohibited in the Netherlands as of 2007. To further encourage the transition to alternative systems prior to the 2012 deadline, as well as to enable producers to adjust to new management strategies required in aviaries, litter or on range, the government is also permitting a 10-year beak trimming grace period, for those producers who change systems prior to 2007. Government incentive programs are also being developed to promote organic farming. Consumer demand and pressure from societal groups have also encouraged supermarkets to prohibit the sale of eggs obtained from caged hens.

As a member of the EU, the Netherlands follows the housing requirements and the labelling code stipulated by the EU directive. NL represents the country code. Since enriched cage eggs are sold as category 3 eggs and do not command a higher price, few producers in the Netherlands choose to house hens in enriched cage systems. Of the 30 million laying hens housed, more than 50% are now kept in aviaries, on free range or as organic production, and aviaries comprise the majority of alternative systems. Covered outdoor access areas known as wintergardens are also becoming increasingly popular, and are often combined with barn systems. The Netherlands has developed and revised action plans for

controlling Salmonella that include compulsory monitoring, hygiene maintenance and measures required for positive test results. To minimize costs incurred when flocks test positive, more than 80% of producers vaccinate against Salmonella.

Switzerland is a highly industrialized nation, known for its production efficiency and quality, and strong work ethic. Having a very small but mountainous land area, the country depends heavily on foreign trade. Switzerland has chosen to maintain neutrality, but is involved in many international organizations. Citizens are highly educated, well informed, and adopt a progressive and proactive approach towards animal welfare, environmental issues, and international policies. Swiss voters have had a significant impact on animal welfare legislation. In 1969, the Swiss Animal Welfare Act was approved by 85% of voters in the cantonal of Zurich. The Act was the first to include the appropriate keeping of animals as a measure of protection from cruelty. Public pressure to enforce a national Act continued and in 1978, the Swiss parliament approved the Swiss Federal Act on Animal Protection. The federal Act stipulated guidelines for preventing pain and suffering, and described the proper keeping of animals, including freedom for movement, unlawful keeping and allowable housing systems. Authorization of housing systems for animal keeping was now required. In 1981, the Swiss Animal Welfare Ordinance was introduced to establish clear, measurable guidelines for the federal Act. For laying hens, the Ordinance stipulated a minimum requirement of 800 square cm floor area per bird as well as protected nest areas, perches or grating. Under these minimum conditions, conventional battery cages were effectively banned. Although furnished cage systems that could meet these requirements would be permitted if authorized, no such systems were, or have since been approved. Consequently, non-cage systems have prevailed in Switzerland.

Switzerland's laying hen population approximates 3 million birds and egg production is approximately 75% self-sufficient. Aviaries are the most common housing system and are frequently combined with wintergardens. The Swiss government is currently providing financial incentive for producers to build wintergardens, as well as additional funding if pasture areas are added for free ranging. Consequently over 80% of Swiss layer flocks now have access to outdoor range.

The Authorization Procedure for housing of agricultural species is carried out by the Swiss Federal Veterinary Office (FVO) and for laying hens occurs at the Centre for Housing – Poultry and Rabbits. Systems are evaluated based on their compliance with the AWO and cited literature, and if necessary, physiological and behavioural measures are conducted. If after testing at the FVO, a system is found to provide appropriate living conditions, the centre may grant pre-authorization for testing in a commercial setting. Systems are tested with 4 flock rotations and each flock is assessed for condition, behaviour, hygiene, manageability, environmental quality and post mortem examinations. Swiss law also permits beak clipping of chicks insofar as the procedure does not interfere with normal feeding.

Switzerland follows a similar labelling format as the EU egg code. While 0 also represents organic production, 1 identifies systems that use free range in addition to outdoor access, 2 refers to floor systems, and 3 implies that eggs are imported, since cage eggs are not produced in Switzerland. Date of lay and producer identification number are optional additions, however the country code (CH) must be present. For imported eggs, cartons must inform consumers that eggs were produced in cages that are not admissible by Swiss standards.

The Swiss Salmonella control policy involves intense monitoring of imported animals, as well as mandatory and voluntary surveillance of animals, housing and supplies, throughout the production period. Producers who market their products directly must finance testing costs independently. The Swiss Egg Industry has conducted a vigorous campaign to promote the quality of the Swiss egg, guaranteeing that hens are housed in welfare friendly systems. Major Swiss corporations have also discontinued purchase of eggs from producers who do not comply with Swiss standards of production.

Sweden is the fifth largest country in Europe. It is known for efficient production that promotes ecological, economical and sustainable agricultural development. Sweden has embraced organic production and by adopting policies such as certifying products, organizing problem-solving sectors, engaging large food corporations, and establishing good relations with conventional producers has increased consumer awareness, gained consumer trust and encouraged this market to flourish. Swedish consumers are well informed and concerned about environmental issues, food safety and animal welfare,

and Sweden's legislative policies reflect this concern. In 1988, the Swedish Animal Welfare Act (AWA) was altered to prohibit the practice of beak trimming, to require all cage systems to provide a perch and claw abrasive device by 1994, and to ban all cage systems by 1999. Compulsory testing of all new housing systems would be required and certified, provided animal or worker health was not compromised, and beak trimming or medication would not have to be introduced. Compulsory evaluation would be carried out by the Swedish Animal Welfare Agency. Permissible systems would be assessed in a commercial setting for their effect on bird behaviour and condition, use of nest, perch and litter facilities, and environmental conditions. Sweden became a member of the EU in 1995.

By 1997, approximately 80% of Swedish layer hens were still being housed in conventional cages and it had become apparent that a system capable of meeting all of the requirements of the Ordinance was not yet available. A vote to change the wording of the Ordinance, to include cage housing that would provide hens with nest, perch and litter facilities, was held in 1998 and supported by 80% of the parliamentary majority. To maintain compliance with the EU laying hen directive (1999/74/EC), perch space requirements in enriched cages also had to be increased from 12 to 15 cm per bird. Sweden enforces a Salmonella control program that exceeds EU requirements and this has served to limit imports of less expensive eggs from sources where hens are housed in conventional cage systems. The program, which combines mandatory and voluntary testing procedures, receives financial support from the EU and the Swedish government, and has reduced the prevalence of Salmonella to less than 1% in Sweden.

The first enriched, small group cage model passed compulsory testing and was accepted for field trials in 1988. It was approved for commercial use in 2000 and Sweden became the first country to adopt enriched cage systems for commercial production. Today approximately 30% or 1.5 million of Sweden's laying hens are housed in enriched cages. Over 60% of egg production occurs in aviaries and deep litter systems. For Sweden, where beak trimming is prohibited and feather pecking and cannibalism have been problematic, the enriched cage has provided an alternative housing solution to non-cage systems. Continued research and development of cage systems has ensured that production in enriched cages is comparable to conventional cage systems.

Germany is Europe's most populous nation and is an original member of the EU. Centrally located amongst industrialized countries, Germany has been forced to devote considerable effort to environmental concerns, which has also increased consumer awareness and involvement in related issues such as animal husbandry. In 2002, the German Animal Welfare Farm Animal Husbandry Ordinance was amended to prohibit the keeping of laying hens in cage systems beyond 2007. A transitional period for enriched cages would apply until December 31, 2011. Although 90% of consumers are opposed to battery cage housing of layer hens, the German egg industry fears a complete ban of cage systems will have dire consequences for German egg production, since foreign eggs from cage systems will continue to be available for purchase in Germany. The Federal Ministry of Consumer Protection, Food and Agriculture (FAL) has proposed allowance of a small aviary system, as a potential compromise to the new Ordinance. This "Kleinvoliere" is based upon the structure and principles of the original Get-Away cage. Research and development of this system are currently ongoing at the German Institute for Animal Protection and Animal Husbandry and researchers suggest that a feasible solution to the problem is not achievable before 2007. At this time in Germany, the FAL is proposing an amendment of the Ordinance to permit cage systems until a solution is available. Researchers and industry agree that time is needed to develop a system for the German market that protects hen welfare but allows production of a cost efficient egg.

As Europeans have gained experience with alternative housing systems, a number of beneficial management strategies have become apparent. Producers and researchers in the Netherlands, Switzerland and Sweden agree that the conditions of the rearing period must resemble those of the production period insofar as possible. This familiarizes birds with their system early on, eases the transition from one system to another, and encourages development and expression of natural behaviours and habits that will improve production. Operators also agree that for non-cage systems where large numbers of birds are housed together, barns must be divided into functional areas that can be accessed by traffic trails. This encourages bird distribution throughout the barn, permits use of amenities without disturbance from other birds, provides safe, quiet places for birds to rest, and helps the producer to observe and manage the system.

A number of strategies can be adopted to improve nest box use and reduce the incidence of floor eggs. For example, by collecting floor eggs often and placing these and system eggs in nest boxes, birds are encouraged to lay in nest sites. Water and feed systems should also be located near the nests so that birds are not drawn away to eat or drink, and adequate lighting should be provided, particularly for lower level nest sites. Additional lighting and electric fencing can also be used to deter birds from laying in problematic, non-nest areas.

Air quality issues are of considerable concern in alternative systems and can be improved by avoiding feeding and watering in the litter area. Litter depth should also be minimized to facilitate drying. Spreading substrates on the floor encourages birds to scratch and dust bath, which serves to rotate the litter and further promote drying. Manure removal and litter renewal should be carried out frequently. For non-cage systems, birds should be encouraged to move upwards and into the housing system where manure will fall onto belts. Staggering of tiers, minimizing distance between systems, incorporating feed and water facilities at different levels and designating top levels for resting further encourages natural vertical tendencies.

Productivity can also be improved in alternative systems by adopting management strategies. Frequent feeding and equal distribution of feed throughout the barn discourages aggression and promotes flock uniformity. Increasing litter appeal by spreading substrate, and preoccupying birds with straw and limestone blocks will redirect pecking, thereby minimizing feather pecking and cannibalism. The additional movement in non-cage systems promotes bird health, and free range birds tend to consume less feed. Outdoor systems must be appealing and provide protective cover, to encourage birds to explore. Range areas should be rotated to allow pasture recovery and to accommodate weather conditions, and installation of predatory fencing will reduce mortalities.

Choosing a strain of bird that is well suited to a housing system is necessary to compliment the management strategies adopted. Calm, non-aggressive strains are a good choice for non-cage systems where many birds are housed together. Some strains that are less inclined to explore might be better suited

to single tiered, floor litter systems or enriched cages. Hybrids with a medium body condition and good plumage are well suited to outdoor range systems.

There is little question that alternative housing systems require considerable management effort, however high productivity, low mortality, and a safe working environment are all achievable, and management skills will continue to develop as experience is gained. While the transition to alternative housing systems may be challenging, the satisfaction of achieving a balance between hen welfare and successful production can be extremely rewarding.

Ongoing research is necessary to continue to improve alternative systems. An increased understanding of hen behaviour and preference will result in improvements to system design and layout, which will enhance use of facilities and impact production efficiency. Genotype research may serve to provide a genetically suitable layer strain that is calm, not aggressive or inclined to feather peck, and produces well. Developments to free range and outdoor systems will enhance hen welfare while ensuring food safety. Finding the appropriate alternative system will require time and practice but will ultimately better synthesize the needs of the hen, the producer, the industry and the environment.