

Taking eggs further – Part 1: Asia dominates in egg consumption

//16 Jul 2010

The gross majority of egg consumption takes place in the intensely populated region of Asia where this protein serves as a major food. A great variety exists in the production, processing and pricing of eggs and egg products.

By **Christoffer Ernst**, Sanovo Staalkat Group, Sjanghai, China

We speak of an egg industry, but in reality, few people know that there is an industry behind eggs, which are often perceived as a generic product - a hen lays it and the consumer eats it! A large industry exists, however, to ensure that eggs are taken from the hen to the table or food processor. Unfortunately, eggs are often viewed in a negative light in the press, with consumers easily believing that they are high in cholesterol, or scared of consuming egg products because salmonella may make them sick. The truth, however, is that heart associations and doctors around the world have found that eggs actually do not pose a cholesterol risk, with eggs containing healthy levels of good cholesterol. Eggs are an excellent cheap, convenient and tasty food source, offering many nutrients to consumers.



Asia dominating

Over 65% of global egg production takes place in Asia. Each of the 16 countries that make up this region differ from each other, whether we look at culture, religion, wealth, infrastructure or eating habits. When it comes to egg industrialisation we also see varying levels of activity. Where one country like Malaysia is ahead in grading eggs for instance, another country like Indonesia is still at the very early stage. Where a country like Japan has the highest degree of egg products production, seen in the percentage of eggs going to further processing for liquid and powdered eggs, a country like Thailand has almost no processing and therefore relies heavily on imports of such egg products. Looking further into the differences in the Asian region, one only needs to study the differing prices of shell eggs. It is evident that there are big differences in egg prices across the region (*Figure 1*). These fluctuations can be a result of feed costs, production methods, efficiency, domestic consumption or dependency on imports.

Figure 1 - August 2008 farmgate egg prices - Asia/Pacific



Great differences

Singapore has to deal with the highest costs, largely due to their total dependence on imported eggs with the bulk coming from Malaysia. In addition, egg products are imported mainly from Europe, India and the US. Japan is also in the high end, primarily due to domestic supply being outweighed by demand resulting in imports of egg products. In fact, Japan is one of the largest importing countries of egg products in the world. Prices in Vietnam at a mid range remain high due to both consumption and basic egg production systems. Looking at China, it is interesting to see that prices are at the low end, despite very high domestic consumption. Here, 90% of the eggs are consumed within China, at over 300 eggs per capita per year. However, there is over-capacity in the market. Over 80% of Chinese egg production occurs on small-scale backyard family-type operations. Finally, egg production costs in India are the lowest in the region due to low feed costs. Egg consumption in India is the lowest in Asia with less than 50 eggs per capita per year. In August 2007, there was almost US\$1 difference between the cost of a kg of eggs in Singapore compared to India.

The differentiation on the level of industrialisation in selected countries and regions is evident (Table 1). Grading and further processing are integrated in the EU, the US and Japan, with 60 to nearly 100% being graded and packed, and over 30% of eggs being further processed. Compare this with China with less than 0.2% being graded and further processed. In Taiwan, the integration is at a relatively high level with 20% of eggs being graded and 14% of eggs being processed. Within the Asian region the picture is somewhere between China and Taiwan, with Indonesia and Vietnam at the lowest level of integration, Malaysia being high on graded egg integration, and Korea being high on further processed eggs integration.

Table 1 - The differentiation on the level of industrialisation in selected countries and regions					
	China	EU	USA	Japan	Taiwan
Production	29.800.000 t	6.800.000 t	5.300.000 t	2.500.000 t	394.000 t
% of world	49,7% I	11,3%	8,8%	4,2%	0,7%
Farms > 5.000.000 layers	0		12	2	0
Farms > 1.000.000 layers	2		64	84	0
Farms > 50.000 layers	119		255	681	20
Grading facilities	7	+150	96	+700	16
% graded	0,13% (38.000 t)	+98% (6.800.000 t)	+98% (5.300.000 t)	+60% (1.500.000 t)	20% (79.000 t)
Processing facilities	10	+250	50	+105	9
% processed	0,13% (40.000 t)	35% (2.400.000 t)	40% (2.120.000 t)	40% (1.000.000 t)	14% (55.000 t)

Global trade

Eggs and egg products are traded globally. There is a high level of egg trade within the EU, and many eggs and egg products are imported from outside the EU. Fresh eggs are exported from Germany, the Netherlands and the US into Hong Kong, while Indian egg powder is sold in Europe, the Middle East and Japan. Other egg powders are traded from South America to Europe, from Europe and the US to Asia and so on. It is interesting to note that there is not a significant amount of eggs or egg products originating from Asia going west. This is in large part due to the low level of industrialisation, control and modern processing. However, what we are seeing more of is intra-regional trade within Asia.

Reports announce that Myanmar has been granted the right to export eggs to the Middle East, while Malaysia is grasping the possibility of exporting to Hong Kong after putting a ban in place of Chinese eggs due to the melamine scandal. On the processed egg branch, Japan, Korea, Philippines and Hong Kong all import frozen liquid egg products and powder from the US, the EU and India, while other countries in the region like Indonesia, Thailand, Vietnam and Malaysia all import egg powders from the US, the EU and India. It would make more sense for liquid egg products to be produced locally or at least imported from nearby countries. The problem is competitiveness, with shell egg prices in the EU and the US often being lower than most Asian nations. If we look back to the prices, the EU and the US prices are close to the low Indian prices. How can Malaysia compete with EU and US products, with 65 cents higher prices per kg?

Economies of scale

The EU as well as the US can keep prices down for a number of reasons. On the one hand, the US has some of the lowest feed costs allowing for lower overall production costs. In addition, there is a very high level of industrialisation and integration in the US, with the bulk of egg processors running several million layers and integrated packing and processing operations. This allows them to benefit from economies of scale, R&D and product innovation. In Europe, we see more and more consolidation creating larger processing units, again benefiting from economies of scale.

Egg processing can be set up in a very small manner, to supply fresh liquid pasteurised products to the local market, to medium-scale with both liquid and powder, or very large-scale. Grading and packing of eggs can also be done in differing capacities, and two standard methods are usually followed, either having own



Large-scale operations in Asia, like here at the Long Chun Farm in Taiwan, guarantee ample supply of table eggs.

flocks of layers, with on-or off-site packing station, or as an egg distributor, collecting eggs from various farms, grading, packing, branding and distributing them to the market or to egg processors. Whatever the size or scope, the same principals apply. For packing and grading it should be simple, robust and efficient equipment, easy to maintain and operate with minimum need of service and technical support from the equipment supplier.

Keeping in mind that a grading and packing station is most often set up at the farm site, the environment is not particularly suitable for highly advanced computerised systems. After all, hens do not stop laying just because there is a failure in the equipment, for example. As such, when a problem arises, it should be handled by on-site staff, without a prerequisite for higher education.

Control from the beginning

Control of laying hens is imperative. Quality starts with the hen, and correct management of laying farms is the key to further development. Strictly adhering to international standards is crucial in order to be able to export and sell to companies operating on an international level. Banning the use of antibiotics, pesticides and other harmful agents is a necessity. This is difficult to control in small-scale production facilities. Regulating shell eggs is the first step towards industrialisation. There are very large differences in the level of grading found in Asia, ranging from 0 in a country like Indonesia to being almost a prerequisite in a country like Malaysia. Grading and packing can be done on a large range of machines with different capacities and differing ranges of automatic detection. In grading it is important to have minimum handling with a minimum of transfer points of the egg to minimise straining of the eggs, while also employing detection systems either automatically or manually. The main detection systems include UVC, crack, leak, dirt and blood detection. At the farm and individual shed site, it is common to either have a farm packer or to connect the automatic collecting system to a conveyor system, delivering the eggs directly to a grader.