# JSR conference focuses on profitability

Recently, the international pig breeding company, JSR Genetics, hosted its 17th JSR Technical Conference at Sutton Bonnington in the UK.

The conference had as its theme 'Making Pork More Profitable' and in this review we will focus on some of the key take home messages from the conference.

In the opening presentation Rob Fisher from International Agribusiness Group LLC looked at global production and consumption trends in cereals, oilseeds and pork.

When it comes to pork a key factor that will influence future demand is the emergence of the Chinese middle class which has rocketed from some 20 million in 1990 to 49 million in 2000 and to just short of 100 million today. By 2020 their numbers are expected to be approaching 250 million!

If one then couples these figures to current per capita meat consumption figures for China of just over 100lb for all meats and compares this to the USA (approaching 260lb), Hong Kong (250lb) and the EU (an average of 15 countries of about 160lb) a huge potential demand for meat in China becomes very apparent. In fact, if one looks at the Chinese and world pork consumption figures since 1975 (Fig. 1) the extent to which the latter is influenced by the former soon becomes very apparent.

Nowadays, one can not consider world cereal production without considering what proportion of it is going for the production of 'biodiesel' or ethanol. In Europe at the turn of the decade this was negligible, but now it is approaching some 1600 million gallons with some two thirds of this being produced in just three countries – Germany, France and Italy.

In the USA annual production of ethanol had been relatively steady at less than 2,000 million gallons until 2002 when production took off. This year's production will be approaching 7,000 million gallons. This means more cereals are going for this sector and this will be at the expense of the livestock sector in terms of cereal availability and, hence, price.

If one looks at figures on land usage for the three key players these make interesting reading (Table 1).

If one then considers the example of soybeans, China's production met her needs until the end of the 1990s when her consumption rocketed but domestic production remained static – the difference, which now equates to twice domestic production, has been met by imports. This is virtually mirrored by the rise in production of soybeans in Brazil and other South American countries.

In the second presentation John Webb from Maple Leaf Foods Inc of Canada looked at the future role of genetics in the pork chain.

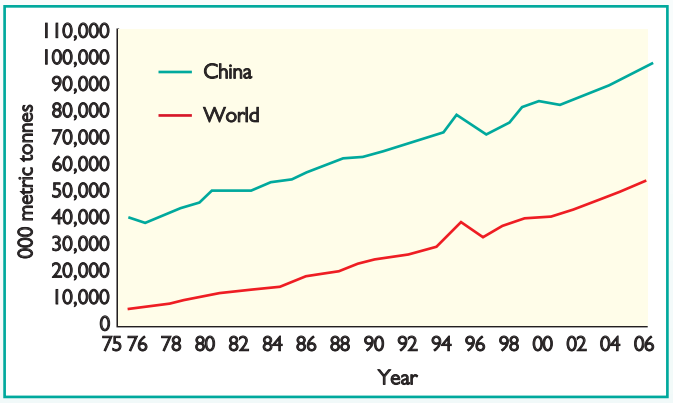


***Fig. 1. Chinese and world pork production figures.***

He felt that the UK pig industry had been exceptional in its ability to embrace new technology and that this had enabled UK breeding companies to lead the world in terms of genetic improvement, resulting in reduced back fat and production costs. However, he felt that this very success could have been instrumental in pork's steady slide into the 'commodity trap' where added value was becoming harder and harder to achieve.

John felt that the following emerging sciences will provide opportunities. These include:

- **Genomics** in which the international genome project has provided a large number of potential markers. However, there is the problem of how to handle such a large number of markers each of which only accounts for a small fraction of genetic variation.

- **Nutrigenomics,** which is essentially the tailoring of the feed to the genotype. In the pork chain there are a variety of genotypes which creates a practical problem. Perhaps this could be overcome by dividing the final generation into two or more classes, for example, high versus low protein deposition, and feeding these accordingly. This is further complicated by consumer genotype, for example the need to produce omega-3 pork.

- **Gender control** via semen sexing (in which progress has been slow) would provide a major step forward in production efficiency.

- **Genetic modification** has had a lot of progress but unfortunately the consumer is not ready for this technology. The costs associated with this will be high so it could be that, in the long term, genetic traits would be better changed by gene expression rather than gene transfer.

- **Cloning** can produce identical terminal sires for meat production. Since only 25% of genetic variation in the slaughter generation is between sires the phenotypic variation in a meat quality trait with 20% heritability would be reduced by only 5%.

- **Quantum biology** is still in its infancy but this science could deliver the technology to identify changes in DNA in the living animal and this would enable real time genotyping which could provide on-line information about meat quality to the abattoir.

John then went on to consider what genetics could contribute. He saw significant contributions in the

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***Table 1. Arable land utilisation in the three major crop producing countries.***

| Country | Year | Hectares harvested (mills.) | Percentage of | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Maize | Sorghum | Cotton | Soybean | Wheat | Sugar | Rice | Veg | Oil crops |
| USA | 1993 | 82.8 | 31 | 4 | 6 | 26 | 31 | | | | |
| | 2006 | 85.5 | 34 | 3 | 6 | 26 | 22 | | | | |
| China | 1992 | 109.2 | 18 | | 6 | 6 | 26 | | 28 | 6 | 10 |
| | 2005 | 106.1 | 21 | | 4 | 8 | 18 | | 23 | 14 | 12 |
| Brazil | 1992 | 30.4 | 39 | | | 34 | | 13 | 14 | | |
| | 2006 | 44.1 | 29 | | | 50 | | 13 | 8 | | |

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ability to produce low cost pork as well as in the areas of meat quality and product consistency. On the disease front genetics will help us to better understand the immune response and provide rapid diagnostic testing through a knowledge of the DNA/RNA sequence of germs.

Genetics also provides useful tools in the area of traceability and can provide the proof of origin that certain export markets require. It will also facilitate in giving flexibility to differentiate products and the whole area of human foods in combating cancer of an ageing human population opens up if, for example, we can change fatty acid profiles in pork.

In concluding Dr Webb predicted that processors will move into a stratified range of products from commodity to premium and this will require flexibility that will be most easily achievable through specialised terminal sires.

Dr Steven McOrist from the University of Nottingham then looked at potential changes on the veterinary front. This was important as in a recent study over 70% of respondents identified health as the most important factor to consider by purchasers of breeding stock or semen.

In addition, a recent study at Wageningen reported differences between high health and standard farms as being three pigs per sow per year and 15 Euros difference per pig sold.

Over the last decade or so health issues such as PRRS, Mycoplasmosis, PMWS, classic swine fever and foot and mouth disease have all negatively impacted on pig health in Europe. Thus, improving health status will bring major economic benefits.

At the same time pig farms are getting bigger and bigger. This provides benefits in that partial and total depops are more viable, there can be better biosecurity, pigs can be sourced which are free of predefined problems, autogenous vaccination programmes are more effective and new vaccines such as the one for ileitis can be effectively introduced.

Conversely, the development of smaller farms to serve niche markets is often accompanied by health and welfare issues.

- Provision of a more consistent offer to the customer
- Achieve a higher level of product flavour
- Security through long term relationship with retailers
- Sell pork's attribute vs. other proteins
- Price stability throughout the supply chain

***Table 2. Tesco's goals for fresh pork.***

This will necessitate the large integrators employing their own veterinarians so the veterinarians in practice with pig expertise will decline and the cost of using them will increase. Perhaps by 2020 there will be less than 20 specialist pig veterinarians in the UK!

Andrew Carter from British supermarket group Tesco then shared his views on how producers and retailers could work together to sell more pork to consumers.

Currently Tesco has annual group sales of £42bn of which £9bn is from outside the UK. They process 200,000 orders a week electronically and the .com side of their business is worth £1bn a year in sales.

Tesco see their customers as wanting consistent quality, value for money, price consistency, 'a deal', innovation, healthier products, good food to eat, something to create/be proud of, to buy products that fulfil individual needs and 'a stake in their community through what they buy'.

To achieve this Tesco feel that they and their suppliers must improve product quality, provide good quality for money, must not compromise on safety and security, must be better at addressing customer concerns such as healthy eating, must understand that customers want good food, must provide customer something to create and be proud of and must develop a bond with the consumer through their purchases.

To do this Tesco requires to serve its customers needs, a consistent product, quality, traceability and food safety and long term supplier relationships.

As far as fresh pork is concerned their goals are detailed in Table 2.

However, this must be looked at against the global backcloth of issues such as increased production from European and South American sources, increased tertiary branded (non-welfare) activity, demand for welfare raw material outstripping supply (which also depresses prices) and international producers becoming more professional and competitive.

To this end Tesco stated that they will develop international sources to equivalent standards but that they will not take pork from non-welfare sources. In other words the customer (and consumer) will lead the growth of the industry. ■