



A vision for 2020, the future of poultry

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Summary

With today's many competing challenges it may seem difficult for the poultry industry to see the bigger picture. Examining these challenges in a systematic manner, however, suggests that the future for the poultry industry is much brighter than it might seem at first glance. In fact in comparison to other key proteins, poultry producers are disproportionately favoured and can respond more readily to these challenges.

In the Alltech 2012 global survey of 132 countries it was clear that the production of feed for poultry, combining broilers, layers, turkeys and other avian species, represents the largest in terms of feed produced. The challenges that the industry faces can be broadly attributed to three concerns - resource issues, changing expectations and industry evolution.

1) Resource issues

These are acutely important to poultry producers, both directly and indirectly. Companies, often with national backing, have been working to secure land for production in markets where they would like to compete. For example, China, Korea, South Africa and others have been doing deals in Africa. China has also tried to buy millions of hectares of land in the Philippines, and a Korean company tried to purchase millions of hectares in Madagascar but in both cases, the deals were rescinded after popular outcry.

Similarly, competition for water is an issue at both the national and international level. For example, India and China have each drilled over 20 million wells, with the combined intent of feeding 300

million people from these new reserves. However, as the demand exceeds reserves, the water table drops, which puts entire regions in a very serious position. Grain production specifically produced in this way is not sustainable, leading to short term vulnerability to periods of relative drought, while erosion of top soil and desertification are longer term threats.

Food and fuel are now competitors with the feed industry for access to grain. Food Policy Magazine in its May 2011 issue said that "the ability to grow food is fast becoming a new form of geological leverage". As much as 50% of this year's U.S. corn crop is being used for ethanol, and globally 25% of this year's grain is expected to become some sort of bio-fuel. The accelerating growth in demand has been matched with insufficient supply. Corn inventories are low, with just 55-65 days of inventory, and US feed levels are even lower. Until recently, agriculture has been able to respond to pressures on supply by increasing yield, but the example of stagnating yields in rice give pause for concern. With reports from the futures market of traders taking positions at \$12 a bushel, the pressure on prices is unlikely to improve soon. The result, inevitably, is significant price increases, putting pressure on poultry producers dependent on grain for feed.

2) Changing expectations

Regulators, markets and consumers are demanding rapid change from poultry producers. The environmental impact of animal agriculture is being scrutinized at both the national and international level by regulators and consumers. Food safety concerns are now worldwide, and high-profile contamination events have opened the door for regulators. With ever more sensitive detection equipment, the ability to detect pathogens and toxins in feed is being redefined by and creating new lower standards of acceptable pathogen loads. This risks re-classifying pathogens as food adulterants and no longer the natural consequence of intensified food production. Another example are the new regulations on the use of antibiotics in feed, partly driven by consumer concerns. The growing consumer requests for the labelling of 'food miles' and the concern about carbon footprints are

another example of the way that consumers affect the marketplace.

3) The evolution of the industry

Poultry enterprises are changing from being local or regional to multinational and global. Over the last 20 years companies with location advantages have become international, bringing competition to the local producer. Now, global consolidation of dominant firms has become a clear trend in the chicken industry. Brazilian companies have purchased operations in the US, the UK and the Netherlands; Ukrainian and Korean companies have recently made purchases in the US; and US companies have acquired operations in Brazil, India and China. These developments point to the interconnectivity of the poultry industry, and will inevitably change the nature of competition.

Resource challenges, changing expectations from outside the industry, and industry evolution may seem like intractable, insuperable challenges that poultry producers can not control directly. However, the industry has some strengths and a number of opportunities which become more apparent when looking at the bigger picture. For example, while **resource pressures** on land, water and alternate grain uses may push up the price of grain, population pressures push up the need for more food: every year there are 80 million additional mouths to feed. To meet this demand requires increasing production 50-70%, either through new lands or through increased yield. This is leading to a tremendous crisis in terms of crops and grazing land, but it also marks an opportunity for the poultry industry, in large part because of **changing expectations**. The world population is not just growing but the number of working poor, working class and middle classes are expanding. It is well known that as people move towards middle class, they shift away from the consumption of beans and rice, and towards meats and more processed foods, and as a result the consumption of meat (including chicken) and eggs is projected to show strong growth (at 29% and 16% respectively). Less well understood is that even the 2 billion people who survive on less than \$2 a day have mobile phones, a television at home, and may make the surprising decision to purchase food based on taste and not just cost.

Human behaviour is unpredictable and not necessarily logical! Another is the concern consumers have about health, which has already resulted in a link between changing consumer expectations and **industry evolution**. The western world has

quickly embraced the idea of 'super foods' that will lead to better health through eating, such as eggs enhanced through nutrition providing higher levels of antioxidants, organic minerals (selenium) and omega 3.

The poultry industry has evolved rapidly over the last number of years. Productivity improvements have been dramatic, with a gain of half a day faster growth each year projected for the foreseeable future. Based on continued genetic advances in 20 years a 2.2 kilo bird will be produced in just 30 -32 days. Breeder performance has seen improvement; hatchability has returned to the levels of the late 1980's; and Agristats have reported both a continued drop in levels of US broiler condemnations in the field and improvements in liveability. Finally the yield as a percentage of liveweight has improved fairly linearly from 69% to over 75% in 2011.

Nutrigenomics – getting more from the gene

These impressive changes have been largely the work of genetics, but that is only the beginning. While knowing the genome is important, nurturing through nutrition is also essential to optimizing gene expression. Alltech's work with the gene chip makes it possible to identify nutrition-based differences between individuals, which in turn allows the fine tuning of the nutrition provided in a way that will maximize performance and meat quality. Nutrigenomics, as it is known, is an example of industry evolution as a way to address both resource issues and changing expectations.

One example of nutrigenomics in practice is the use of EcomomasE, which has demonstrated that the same gene expression pattern can be achieved even with the Vitamin E content reduced by 80% - a substantial feed cost saving. Another has been the use of Nutrigenomics to increase the rapidity in the screening on new technologies, and one of the results has been Actigen, which was fractionated from specific carbohydrates present in yeast cell wall, and which has been shown to be twice as effective in improving growth as other yeast fractions.

Finally through Alltech's Programmed Nutrition (PN), it is possible to use Nutrigenomics to deliver diets that result in lower levels of mineral excretion, improved antioxidant status of the animal, avail of alternative feed materials, make the diet more cost effective and enhance the quality of the meat. This **industry evolution** leads to cost efficiencies which can help to offset the **resource pressures** facing the industry, while the nutritional benefits

enable the production of meat and eggs that are tastier, safer and more attractive to the consumer while produced in a manner which meets consumer expectations.

Conclusion

'Joined up thinking' of this nature can allow poultry producers to address resource challenges by decreasing feed costs, using alternative raw materials to improve performance; to work with the changing expectations of regulators and consumers, and to innovate for maximum performance.

It is time for poultry producers to move beyond selling commodities on price, and to create products that are fundamentally better. There is tremendous opportunity in the gap between current performance and the true genetic capacity of these birds to produce more eggs and more meat. By moving to an integrated approach, in which policies regarding resource issues; changing expectations for food and food production, and industry change are considered simultaneously it is possible to move beyond a short term, myopic approach towards a 20-20 vision of the future, in 2020.