

LATEST TRENDS AND NEWS IN POULTRY PRODUCTION FROM THE USA

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OVERVIEW

As is well known, poultry production in the United States has increased in an almost linear fashion since the end of World War II. This development can be attributed to a number of factors, including intensive production of grain and oil seeds in the central part of the country, dramatic improvements in both genetics and nutrition of poultry, the public perception of poultry as a “healthy” meat, and at least initially the underdeveloped economic status of regions in the South which were in need of a dynamic new industry. At present the consumption of chicken meat in the United States is approximately 40kg with a total production of approximately 16 million metric tons annually. Of this 15% is exported.

While the poultry industry in the United States has been extremely successful during the past half century, a number of challenges are appearing which will require increasing attention. It is the purpose of this presentation not to dwell on production statistics. These are currently available on the internet and elsewhere for those interested in specific data. Rather, as a number of the challenges facing the United States poultry industry may be shared by poultry producers in other countries, these issues will receive primary emphasis in this presentation.

ENERGY FOR FEEDS

The relatively high levels of metabolizable energy traditionally used in poultry feeds in the United States has been based on an abundance of attractively

priced grains and fats. However, the future abundance of these feed ingredients can no longer be assumed to be a certainty. As is well known, the value of a commodity will be dictated by relative values if more than one possible use is apparent. For many centuries the energy in grains has been employed to support animal agriculture. Specifically, the energy in starch and other components of grain has been harnessed to convert plant (and to a lesser extent animal) protein into meat and eggs. Due to the world wide abundance of grain this conversion could be accomplished at a cost low enough to permit a dramatic increase in the human consumption of animal proteins, be that from poultry, swine or cattle. Unfortunately, this ready source of highly digestible energy components is being threatened on a massive scale by the simple laws of competitive economics. Traditionally the highest value to be obtained for the energy in grains and fats has been in animal agriculture. However, the dramatic increase in the price of petroleum has encouraged the conversion of traditional sources of energy for animal agriculture into motor fuels. While the relative wisdom of this conversion can be debated government policies in the United States have strongly encouraged the conversion of starch into ethanol, which is mixed with petroleum based products as motor fuels.

It is the magnitude of this present and future conversion that is becoming alarming for sectors of animal agriculture. Throughout grain producing areas of the United States, the commercial sector, including many farmer cooperatives, is rapidly building fermentation facilities to take advantage of government initiatives. Extreme concern is beginning to be voiced by those concerned with the future of animal agriculture in the United States, not to mention ethical considerations. For example, the midwestern state of Iowa has traditionally been a leader in corn production. Incredibly, through the construction of fermentation facilities to produce ethanol, Iowa is expected to become a net importer of corn. In 2003 Iowa exported 803 million bushels of corn but is anticipated to have a 400 to 500 million bushel deficit by 2008 (Smith, 2006). While projections vary, it is commonly believed that the farm level value of corn will increase by approximately 50 percent in a normal year (Aho, 2006). However, if drought or other conditions limit production the current price of corn could be tripled. The possible impact on animal agriculture and world grain trade could be staggering.

A by-product of corn fermentation is DDG (Dried Distillers Grains). For every ton of corn fermented to make ethanol approximately one-third becomes available to the feed industry as DDG. As the oil and protein components of corn are not fermented, their relative concentration in DDG is roughly 3 times that in the original corn. Thus values of 26 to 28 percent protein and 10 percent oil are characteristic of this ingredient (Batal and

Dale, 2006). Obviously, the relative amino-acid composition of DDG reflects that of the original grain used for fermentation, which is lower in biological value than soy protein. Nutritionists, being aware of this, can make adjustments in formulation. However, there is a tremendous loss in metabolizable energy, due to the conversion of starch to ethanol. The metabolizable energy of DDG, on an “as fed” basis, is approximately 11.7 MJ/kg, as opposed to 14.2 MJ/kg for corn (Dale and Batal, 2005).

This reduction in metabolizable energy could be largely compensated for by increasing the level of fat in the diet. Unfortunately, just as the starch in feed grains can be converted to ethanol, it is becoming popular to employ fats for combustion rather than as energy sources for feeds. Traditional fat sources such as poultry fat and used restaurant grease (yellow grease) are increasingly being used either directly in combustion or converted to what is commonly termed “bio-diesel”. In either case, the situation is exactly the same as was reviewed previously for grain. With the current world price of oil, it becomes economically feasible to divert energy from animal feeding to uses of higher economic value. Returning to DDG for a moment, we recall that this ingredient contains approximately 10% oil. There is increased interest in converting at least a portion of this oil into bio-diesel. It is this possibility that is truly alarming to the animal industry as the metabolizable energy of the low fat DDG will render it an ingredient more suitable for pullet than for broiler feeds.

The magnitude of the challenge of obtaining sufficient energy for animal feeds cannot be underestimated. The production of traditional DDG, the conversion of feed fats into bio-diesel, possible removal of oil from DDG, and the likely increase in the price of grain threaten to combine to produce a “perfect storm” facing animal agriculture.

NEW CHALLENGES IN REMAINING COMPETITIVE

As stated at the outset, a number of factors in the period following World War II led to the enormous development of the broiler industry in the United States. However, competition from poultry producers in other countries will certainly be a major challenge in coming years. Increased production in Brazil in particular is worthy of note. At one point during 2005, eight new poultry complexes were being constructed in Brazil versus one in the United States (Aho, 2006). While the current slump in broiler prices has certainly delayed expansion, the basic fact is abundantly clear. Brazil can produce poultry meat at a substantially lower cost than the United States. The most commonly sited reasons for this cost advantage include the fact that Brazil

is an excellent producer of both corn and soybeans, while having a generally lower cost structure in multiple areas. Simply stated, it is becoming expensive to grow chickens in the United States. The cost of construction of a broiler house, for example, is partially dependent on the cost of building materials. Following hurricane Katrina in September of 2005, the cost of building materials increased sharply. These have moderated somewhat, but the current cost of constructing a broiler house in the southern United States, with dimensions of 16x160 meters, is currently about \$170,000. This figure includes site preparation, materials, construction and full equipment but not the initial cost of the land. The traditional curtain sided houses are rapidly being replaced with more expensive but energy efficient solid wall construction in part due to the sharp increases in the cost of natural gas. Some agricultural economists have compared heating the curtain sided houses to trying to keep a home warm in the winter while leaving the windows open, thus is the amount of heat loss through curtains. An increase in costs of land, construction, natural gas and feed ingredients combine to present a challenge to the overall competitiveness of the U.S. poultry industry.

PROBLEMS OF PUBLIC IMAGE

A curious aspect of the continuing increase in poultry consumption in the United States is that it has been accompanied by continuing problems in public perception. While on the one hand the public generally believes poultry meat to be more healthy than beef or pork, this has occurred despite public awareness of real and imagined factors compromising the wholesomeness of poultry meat. A large percentage of the U.S. population believes, for example, that hormones are used to enhance broiler growth. This misconception is not at all diminished by the fact that some poultry firms promote their special product as being "hormone free", thus implying that competitors might in fact be using these substances. A more valid concern relates to the presence of salmonella and other bacteria on fresh poultry carcasses. It has been almost 20 years since a major television news program described water chilling in processing plants as emersion of the chicken in "fecal soup". Since that time, the poultry industry has made enormous strides in reducing bacteria levels in finished product. Public awareness of the possibility of contamination has probably served to encourage improved hygiene in the kitchen, placing greater emphasis on washing utensils used to cut raw poultry, etc. Thus, dramatic improvements made by the poultry industry *per se* in reducing bacteria counts, along with improved cooking practices on the part of the public, has prevented this issue from seriously

eroding poultry consumption. Fortunately, in the United States there have been no dioxin-like incidents to erode public confidence in the wholesomeness of poultry. The possible introduction of H5N1 Poultry Influenza in North America will certainly have a negative effect on consumption. However, both government agencies and poultry industry groups have done extensive preparation in the hope of limiting the impact of the possible arrival of influenza.

DIFFICULTY IN ATTRACTING STUDENTS

A major problem facing not only poultry but agriculture in general in the United States is a decrease during the past several decades in the number of students interested in majoring in these fields. Compared to other exciting career opportunities, Poultry Science is simply “not sexy”. Major universities in the United States with poultry programs have had to dedicate major efforts toward attracting qualified students to their programs. At the University of Georgia, in addition to the traditional major Poultry Science, we have introduced a new major in the poultry curriculum entitled Avian Biology. Students in this program take a number of advanced courses in areas such as genetics, microbiology, physiology, etc. which enable them to keep carrier options open. Once exposed to the dynamic application of advanced biology in poultry production, they are able to overcome the traditional image of majoring in “chicken farming”. Nevertheless, limited student numbers continue to be a problem in agriculture faculties, often leading to reduction in budgets with obvious consequences.

CONCLUSIONS

During the past half century, poultry production in the United States has expanded dramatically due to a number of factors and a broad acceptance of poultry meat by the general public. However, numerous challenges are currently facing the U.S. poultry industry including cost and availability of feed ingredients, along with competition from foreign producers. As the current cost of producing chicken in the U.S. is higher than in some other countries, world trade negotiations may have a major impact on poultry production. Should the price of corn increase from its traditional value over the past half century, production costs in the U.S. will escalate further. Future uncertainties, such as those posed by a possible outbreak of Avian Influenza, are never far from a consciousness of poultry producers.

References

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