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# *Title:*

 ***New and Emerging Issues in Poultry Production***

# *Abstract*

There are various new and emerging issues in poultry production. This paper aims at giving a detail description of some of these issues both locally and within the world poultry industry. Some of the current issues in poultry production are Avian Influenza, Biotechnology, Feeds and Feeding etc. There are also some issues in the local poultry industry that is affecting production. For example, Guyana is unable to export to CARICOM because of poor processing standards; other issues are Feed standards, production cycle, cost of feed, acquisition of export markets etc.

Issues will always be present in any industry some of which would have a positive impact while others may have a negative impact on the industry. Generally most issues arise due to some research work, marketing strategy, complaints by consumers etc. In most cases however, whatever is being done is done to improve service and quality to consumers. In the case of Guyana, much more needs to be done to ensure the sustainability of local poultry production.

**Key Words:** Poultry, Issues, Feeds, Avian Influenza

# *Introduction*

As part of the course package for AGR 422- Poultry Production and Management the students were divided into groups and required to address a particular topic. The topic to be addressed in this write up is New and Emerging Issues in Poultry Production.

According to the Webster’s Encyclopedic Unabridged Dictionary an Issue is defined as a point, matter or dispute, the decision of which is of special or public importance.

Currently there is one particular issue that is affecting Poultry Production World Wide and that has to do with the Avian Influenza or Bird Flu, however in Guyana there are various issues affecting Poultry Production locally. Some of these issues have to do with Processing, Feeding Standards, etc.

Guyana’s poultry sector is the third fastest growing agro-industry in the country. Ten years ago, the domestic poultry industry supplied 55% of local demand. Today, this has risen to almost 100%. That is no small feat when considering the numbers: 80% of all meat consumed in Guyana is poultry; 53.4 million pounds of poultry and 60 million eggs were produced last year; the industry contributes approximately US$25 million to the GDP and employs approximately 17,000 persons. The CARICOM poultry market of approximately US$350 million also offers exciting prospects for the growth of Guyana’s poultry sector. But, due to a non-tariff trade barrier, exports cannot commence until a baseline disease survey is completed and the safety of poultry products is ensured. For this, a proper laboratory and trained technicians are needed.

Guyana has the ability to export chicken but before a single chicken can land in Trinidad or Barbados supermarkets, it must first undergo a comprehensive disease survey in Guyana that guarantees its safety for export. Guyana has Standards for both feeds and Hazard Analysis Critical Control Point (HACCP) for processing; however, there are no regulations to ensure that these standards are maintained and if these are not maintained the guilty party cannot be penalized. It is therefore important that regulations be put in place to ensure that the standards set down by the Guyana National Bureau of Standards (GNBS) are maintained. Standards and regulations must be addressed before we can even attempt to enter CARICOM market.

Swamy et. al., 2002 looked at the effects of micotoxins on growth and Immunological Parameters of Chickens. It has been shown that mycotoxins can cause severe economic losses. It was previously estimated that Fusarium Mycotoxin have resulted in losses estimated at more than $1 billion in Canada and over $2.5 billion in the U.S from 1990 to 1999. The adverse effects in livestock and poultry associated with ingestion of mycotoxin contaminated feed can be reduced through the use of physical, chemical, nutritional or biological approaches. Among the various adsorbents that have been reported to prevent the deleterious effects of mycotoxins, glucomannan polymer (GM polymer) has been more promising given its ability to prevent mycotoxicosis arising from combinations of mycotoxins.

Rossi, et. al, 2004 reported that no significant differences in DNA detection was observed between birds fed Bt and isogenic corn, indicating that DNA derived from transgenic feed undergoes the same fate as isogenic feeds.

Higgins, et. al. in 2004 reported that bacteriophage treatments reduced the frequency of *Salmonella* recovery. If treated with sufficient concentration of an appropriate bacteriophage the incidence of *Salmonella* can be reduced significantly from carcasses.

Payne, et. al. 2004 reported on the effects of Inorganic Versus Organic Selenium on Hen Production and Egg Selenium Concentration. Selenium is a dietary essential nutrient for laying hens. It is essential for the proper function of the antioxidant enzyme glutathione perioxidase, which protects the cell by destroying free radicals. The results from this experiment indicated that percentage hen-day production is not affected by selenium source and that selenium-enriched yeast increases egg selenium concentration more than sodium selinite.

Dibner, et. al. 2004 reported on Antibiotic Growth Promoters in Agriculture and looked at the History and Mode of Action. Antibiotic growth promotion in agricultural animal production has been practiced for about 50 years in the United States and other countries. One of the first reports of resistance in food animals was made by Starr and Reynolds in (1951) after experimental feeding of streptomycin in turkeys. Early concerns about the development of antibiotic resistance in human pathogens and recommendations to ban subtherapeutic use in animal feeds were discussed by Swann in a report to the British Parliament (1969). The World Health Organization in 2000 suggests that animal health management should be routinely practiced so as to avoid the prophylactic use of antimicrobials, and antimicrobial availability should be limited to therapeutic use by priscription.

McElroy 2005, reported on a microsatellite marker associated with resistance to Marek’s disease. Marek’s disease (MD), a lymphoma caused by an avian herpesvirus, is a major disease affecting the poultry industry. It has been roughly estimated that, worldwide, Marek’s disease cost the poultry industry $1 billion to $2 Billion a year. Resistance or Susceptibility to Marek’s disease is a quantitative trait that is affected by multiple genes and the environment. The present study shows that loci affecting Marek’s Disease resistance can be mapped in commercial layer lines. More comprehensive studies are under way to confirm and extend these results.

# *Newcastle Disease*

Newcastle disease is a highly contagious viral disease of domestic poultry, cage and aviary birds and wild birds. It is characterized by digestive, respiratory and/or nervous signs. The disease has a number of strains that differ in the severity of their clinical signs, ranging from unapparent infection to a rapidly fatal condition.
Newcastle disease first came to international attention in Newcastle on Tyne, England, in 1926.
 Newcastle disease virus can infect many species of domestic and wild birds. Most susceptible are domestic fowls, turkeys, pigeons and parrots. Milder disease is seen in ducks, geese, pheasants, quail, guinea fowl and canaries.
The severity of the clinical signs is influenced by the strain of virus and the age, condition and species of the bird. Clinical signs in poultry range from a mild, almost unapparent respiratory disease to a very severe depression, drop in egg production, increased respiration, profuse diarrhea followed by collapse, or long-term nervous signs (such as twisted necks) if the birds survive. Death rate can be up to 100 per cent in severe forms of the disease. The incubation period is usually 5–6 days, but can vary from 2–15 days.
 Medical authorities have confirmed that the disease poses no public health risk to consumers of eggs or poultry products. Chickens that show signs of disease are destroyed and are not used for human consumption; any virus in birds that failed to show symptoms would be completely destroyed by normal cooking.
 Strains of Newcastle Disease virus are present in most countries, including Australia. Outbreaks of virulent Newcastle Disease in recent years in localized areas of New South Wales were eradicated between 1998 and 2001. Spread is usually by direct physical contact with infected or diseased birds. The virus is excreted in manure and is breathed out into the air. Other sources of infection are contaminated equipment, carcasses, water, food and clothing. People can easily carry the virus from one shed or farm to another.

If the virus is confirmed, it can be easily destroyed by heat or by treatment with acids or alkalis. It is destroyed by direct sunlight within 30 minutes, but in cool weather can survive in manure or in contaminated poultry sheds for many weeks. Normal cooking — at a minimum core temperature of 80 0 C for one minute, 75 0 for 5 minutes or 70 0 for 30 minutes — completely destroys the virus in meat.
 Accepted international practice is to attempted to stamp out (eradicate) the disease by destroying all birds that may have been exposed to the virus and to dispose of any infected or exposed products. This is done in conjunction with strict quarantine and movement controls to contain the virus; decontamination to remove any remaining virus; tracing and surveillance to determine the extent of infection; and zoning to define at-risk and disease-free areas.
 Whether this response is appropriate must be determined by the individual circumstances involved with outbreaks. Use of vaccination may be considered and used in certain circumstances. Disposal of any destroyed birds and potentially contaminated or infected products is undertaken in conjunction with animal welfare authorities in strict accordance with standards and controls established by the relevant State Environment Protection Authority.

# *Bird Flu or Highly Pathogenic Avian Influenza*

Bird flu or Avian Influenza, is a contagious disease of animals caused by viruses that normally infect only birds and, less commonly, pigs. While all bird species are thought to be susceptible to infection, domestic poultry flocks are especially vulnerable to infections that can rapidly reach epidemic proportions.

***Classification of the Causative Agent***

 Virus belongs to the family Orthomyxoviridae, genus Influenzavirus A, B. To date, all highly pathogenic isolates have been influenza ‘A’ viruses of subtypes H5 and H7.

The virus has resistance to physical and chemical action such as:

1. Temperature: it is inactivated by 56oC/3 hours; 60oC/30 min.
2. It is also inactive under high acidic conditions.
3. Chemicals such as oxidising agents, sodium dodecyl sulphate,

 lipid solvents, B-propiolactone.

1. Disinfectants: Inactivated by formalin and iodine compounds.

The virus can survive or remains viable for long periods in tissues, feaces and also in water.

***Epidemiology***

The virus is highly contagious and pathogenic, influenza isolates have been obtained primarily from chickens and turkeys. It is reasonable to assume all avian species are susceptible to infection.

***Transmission***

The virus is transmitted through direct contact with secretions from infected

 birds, excretion especially feaces, contaminated feed, water, equipment and clothing, clinically normal waterfowl and sea birds may introduce the virus into flocks and broken contaminated eggs may infect chicks in the incubator.

***Sources of Virus***

The virus is present mainly in feaces and respiratory secretions and it may remain viable for long period of time in infected feces, tissues and water.

***Occurrence***

A pathogenic and mildly pathogenic influenza ‘A’ viruses occur worldwide. Highly Pathogenic Avian Influenza A (HPAI) viruses of the H5 and H7 HA subtypes have been isolated occasionally from free-living birds in Europe and elsewhere. Outbreaks due to HPAI were recorded in Pennsylvania, USA in the years 1983-1984. More recent outbreaks have occurred in Australia, Pakistan and Mexico. There is evidence that H5 viruses of low pathogenicity may mutate and become highly pathogenic. HPAI infections are very rarely seen, and should not be confused with viruses of low pathogenicity, which may also be of H5 or H7 subtypes.

***Diagnosis***

The incubation period of this virus is 3-5 days

***Clinical Diagnosis***

 Severe depression, inappetence, drastic decline in egg production, facial edema with swollen and cyanotic combs and wattles, petechial hemorrhages on internal membrane surfaces and sudden deaths (mortality can reach 100%), however, virus isolation needed for definitive diagnosis.

***Differential diagnosis***The disease can also be referred to as acute fowl cholera, Velogenic Newcastle disease, Infectious laryngotracheitis and Infectious Bronchitis.

***Precautionary Measures to avoid contact with disease:***

* **Sanitary prophylaxis**
a. Avoidance of contact between poultry and wild birds, particularly waterfowl
b. Avoidance of the introduction of birds of unknown health status into a flock
c. Control of human traffic
d. Proper cleaning and disinfection procedures
e. Practice an “all in-all out” system on the poultry farm
* **In outbreaks**
a. Slaughtering of all birds
b. Disposal of carcasses and all poultry products
c. Cleaning and disinfection
d. Allow at least 21 days before restocking

***Symptoms of Bird Flu in Humans***

This includes high body temperature, coughing blood, sore throat, general pains and painful or difficult breathing. The present strain of Virus identified is H5N1

***Global Situation – Present Status of Bird Flu***

The World, as advised by the World Health Organization (WHO) remains in a pre-***pandemic period (WHO phase three)*** in which human infection with a novel virus sub-type (H5) are occurring, but there is no evidence that the virus is spreading efficiently and sustainably among humans. Even though the virus has some ability to infect humans, the ***H5N1 avian influenza remains principally a disease of birds and not humans*.** The total numbers of confirmed human cases occurring from 26 December 2003 to November 2006 to ***253*, of which *148* deaths have been reported.**

***Plans to deal with Bird Flu***

Countries mainly the developed countries have prepared bird flu plans to deal with the disease if it becomes a pandemic. Researchers looked at 19 plans from developed nations and 26 from developing countries. The countries included the US, Norway, Australia, India, China, Serbia, Bahrain, Israel, South Africa, UK, Mexico, Venezuela, Hong Kong, Thailand and Singapore. Researchers found that almost half of the plans they examined favoured antiviral medications such as Tamiflu, while 62% prioritize giving citizens a flu vaccine. Based on the rate at which antivirals are developed and manufactured approximately 14% of the world’s population will be vaccinated within a year of a pandemic. Most countries have also prioritized treatment of citizens with health workers being the first followed by the elderly.

***Present Treatment Available for Disease***

Anti-virals, Tamiflu and Relenza are the two presently being used to fight the disease.

***New Drugs***

A new drug being developed to fight bird flu and seasonal flu helps animals to survive H5N1 avian flu infection. The drug is being developed by BioCryst Pharmaceuticals. The drug called Peramivir, protected mice and ferrets, which are considered the species closest to humans in terms of susceptibility to influenza. Peramivir is still in experimental trials but is considered the next-line drug to fight influenza of all sorts, after Tamiflu and Relenza. Experts want to have several anti-virals to choose from in fighting flu because the virus mutates quickly, and because no drug has been completely effective.

# *Hormones in Poultry Production*

There are a number of reasons why hormones are not used in the poultry industry. In the United States, European Economic Community, and most other developed countries there are extremely strict controls concerning the use of hormones and hormone-like substances against their use in animal feeds. In other words it is illegal. Allegations have been made that illegal use of hormones has occurred, however, there is no logical reason to use them in poultry production.

Broiler growth would not be increased with the use of hormone additives. The genetic selection that developed today’s broiler has resulted in an animal that multiplies its hatch weight by 65 times within a seven-week period. In many cases this is hard for the public to believe. The genetic selection has resulted in an animal which grows to its physiological limit. Like in children who experience a growth spurt during puberty, and have resultant joint inflammation and pain, the broiler lives on this same physiological edge. In fact, it is occasionally recommended that we restrict growth of the broilers in order to enhance their health and well-being. It would be counter productive to try and stimulate a broiler, layer or turkey to exceed their physiological growth limit. If this was done it would most certainly result in a doubling, tripling, and possibly quadrupling of the mortality rate. This would be highly counter productive.

The hormones which may enhance growth are actually proteins. Therefore, if they were consumed in the feed they would be digested in the same way as the corn or soybean meal that they eat. The only way for a growth hormone to be effective would be to inject it everyday in the same manner as Insulin is to treat diabetes. Logically speaking it is physically impossible to inject the 5 billion broilers grown annually in the US each and every day.

Chicken growth hormone is produced for use in scientific research, which means it is not produced on a commercial basis and is extremely expensive and as such makes no commercial sense to use.

It is prevalent in the press about the abuse of anabolic steroids in sports athletes. There is no doubt that their use leads to increased muscle mass. However, they only work in athletes when they are taken in combination with rigorous physical training. Chickens are galliforms, which means they are a heavily bodied, ground-feeding animal that have had restricted flight for thousands of years. In other words they do not readily fly and as such the breast muscle gets limited exercise. This means that anabolic steroids would not have any growth effect on broilers since they do not fly or work their breast muscle.

The bottom line: Hormone use in animal production is illegal. Hormones are not needed to enhance the growth or production of poultry today. The performance of the broilers, turkeys and laying hens which are used in the industry today can be easily explained as a result of genetic selection and nutrition.

Hormones are not even needed:

Three components have contributed to the ability of the birds to grow and develop which has contributed to the high performance birds used in today’s poultry industry:

* First, is the effectiveness of the genetic selection by the primary breeders

 for growth and production of their birds. The breeders have selected the

 birds for a particular use such as meat or egg production.

* Second, is the research which has been done related to the nutritional

 needs of the animal. We know exactly what the levels of protein, energy,

 vitamins and minerals are to achieve optimal growth and performance.

* Third, is the understanding of the environmental needs of the birds. The

 healthier the environment with adequate feeder, water, and floor space the

 better the performance and growth. Enhanced bird welfare results in

 improved growth and egg production.

# *Biotechnology in Poultry feeds*

Publication of research from Mexico on the insertion of a gene from the Newcastle disease virus into seed corn for production of feed for chickens to develop immunity to the disease is the latest example of the ability of biotechnology to increase productivity of agricultural producers while being compatible with existing production practices.

Newcastle disease is a common problem in poultry production around the world. In developed countries like the U.S., monitoring the movement of poultry, testing for the disease and vaccination are used to control it. These methods are also effective on commercial poultry farms in developing countries where facilities and management systems are available. This approach to disease management is less effective in the poorest areas of the world where farmers may not be able to afford vaccine, movements of live poultry are not monitored, testing is limited and ongoing technical assistance is need.

In much of the developing world, small flock poultry production is a developmental phase to help lift poor farmers, many of whom are women, and their families out of poverty. The Food and Agriculture Organization of the United Nations acknowledges that poultry production is the most efficient and cost-effective way to increase the availability of high-protein food and considers Newcastle disease as the single greatest constraint on the production of village poultry. Poultry death rates from Newcastle disease are often close to 100 percent and there is no known treatment. Vaccination is one part of overall good management practices.

The research work in Mexico on Newcastle disease is encouraging because it shows again that biotechnology is applicable to more than just developed country problems. Developing country researchers are working on their unique production challenges rather than just relying on what has been researched in developed countries.
The key to economic progress for a low income farm family is increased output per unit of labor. Controlling diseases in livestock and poultry is one way that output can be increased with very little change in total inputs. Crop growers have been attracted to biotech crops because of the productivity improvements resulting from fewer weeds in fields, less insect pressures and higher yields. The same productivity benefits for livestock and poultry could be achieved by developing feeds tailored by biotechnology to address specific diseases.

This change in production practices strikes at the heart of the debate over “saved seed.” Opponents of biotechnology have argued that moving away from planting traditionally saved seed makes farmers beholden to seed companies. Farmers who are at a subsistence level economically are in that position because of low productivity of labor and other resources. Increasing productivity will require accessing productivity enhancing technologies like improved seed, fertilizer, pesticides and machinery that farmers in developed countries have used for decades.

Long before there was biotechnology, farmers in developed and developing countries increased the volume of production and improved the quality of production by using seeds that were developed off the farm. From hybrid seed corn of 70 years ago in the U.S. to improved varieties of wheat in India 40 years ago during the Green Revolution; improved seed has been a source of productivity increases. In the U.S., Canada, China, India, Brazil, South Africa and over a dozen other countries, biotech seeds are increasing productivity for farmers at all levels of economic development.

Getting the vaccine-enhanced corn into the rural areas where it is needed will not be easy; it will not simply fall from the sky. If the corn-based vaccine is produced by a private company, protecting intellectual property rights will be important. The vaccine gene will need to be inserted into corn varieties that are adapted to local conditions. A simple test should be made available to verify to poultry producers that the corn has the vaccine. Poultry producers will need to learn about the benefits of the new corn and how it should be fed for the most effective control of Newcastle disease. The Mexican researchers used several different feeding regimes, and all of them gave protection, but one may be superior in family poultry production. The Network for Smallholder Poultry Development and similar groups will be essential for performing outreach and education to effectively use the new technology.

It would be convenient if new technology could be inserted into a production system without changing any other conditions, but markets do not work that way. Once the change process begins, it results in a line of reactions throughout the supply chain. Biotech corn for Newcastle disease control is a catalyst that can drive permanent change first for small, family-based corn and poultry producers, but also for other input suppliers and for consumers who will have available a larger and more stable supply of high-protein poultry products.

# *New research could help fight listeriosis*

New research by the US Agricultural Research Service (ARS) could help in developing a management strategy for the deadly *Listeria monocytogenes*, a pathogen that causes Listeriosis.

 It is estimated that Listeria, which can be found in raw and cooked poultry, causes approximately 1,600 cases of listeriosis annually, resulting in 415 deaths. This research will be useful in preventing Listeria contamination and in reducing disease.

Scientists at the Agricultural Research Service ([ARS)](http://www.ars.usda.gov:80/main/main.htm) Eastern Regional Research Center [(ERRC)](http://www.ars.usda.gov:80/main/site_main.htm?modecode=19-35-00-00) and [The Institute for Genomic Research](http://www.tigr.org:80/) have sequenced the genomes of four L. monocytogenes strains, representing three serotypes.

Researchers found that Listeria strains, in addition to sharing serotype-specific and strain-specific genome sequences, have largely similar genetic content and organization.

The scientists also confirmed that Listeria strains have 15 genes in the Crp/Fnr regulatory protein family, which is considerably more than most bacteria. Luchansky and his colleagues are investigating whether these sequences influence the bacterium’s virulence or persistence.

The scientists have identified specific genes that warrant further investigation. They’re also pursuing proteomics and genomics studies. This involves identifying phenotypes, or observable characteristics, understanding the relationships between different strains and investigating different control methods.

Knowing more about L. monocytogenes will help regulatory agencies and members of the food industry make informed decisions about control strategies and safety standards. In addition, uncovering the genetic information that defines Listeria’s characteristics and behaviour will help scientists understand the bacterium’s virulence and persistence.

# *EU and Brazil agree on new trade rules*

The European Commission and Brazil have agreed on a new regime for imports of salted poultry meat, turkey meat and cooked chicken meat into the European Union.

 The agreement modifies the current bound tariff rate concessions for these three items, pre-empting the creation of three new tariff rate quotas.

For salted poultry meat, currently subject to a bound tariff rate of 15.4% with no volume restrictions, the new concession will provide for a total ceiling of 264,245 tons imported at the same bound rate of 15.4% ad valorem. For greater quantities, the out-of-quota rate will be €1,300/ton. The allocation for [Brazil](http://www.brasil.gov.br:80/ingles) will be 170,807 tons.

With regard to preparations of turkey meat, at present subject to a bound rate of 8.5% with no restrictions on imported quantities, the new schedule will provide for a ceiling of 103,896 tons imported under the same current bound rate of 8.5% ad valorem. The out-of-quota rate will be €1,024/ton. The quantity allocated to Brazil will be 92,300 tons.

For the third product, cooked chicken meat, currently subject to a bound tariff rate of 10.9%, the concession will provide for a total tariff quota of 230,453 tons imported under the same tariff of 10.9% ad valorem. The out-of-quota rate will be €1,024/ton. The volume attributed to Brazil will be 73,000 tons.

The [European C](http://ec.europa.eu/index_en.htm)ommission notified to the WTO on 15 June 2006 its intention to modify the concessions contained in the EC Schedule for three poultry lines.

The Commission conducted negotiations with WTO Members having negotiating rights: Brazil, for salted poultry meat, turkey meat and cooked chicken meat and Thailand, for salted poultry meat and cooked chicken meat. Negotiations with Thailand are not yet concluded.

When the issue was first raised, [Brazil complained that the EU proposal was protectionist](http://www.worldpoultry.net/ts_wo/worldpoultry.portal/enc/_nfpb/true/_pageLabel/tswo_page_news_content/tswo_portlet_news_singleeditorschoice1_3search/true/tswo_portlet_news_singleeditorschoice1_3channelId/2205/tswo_portlet_news_singleeditorscho%20). Meanwhile, Thailand has been busy trying to [convince the EU to soften its proposed import quotas](http://www.worldpoultry.net/ts_wo/worldpoultry.portal/enc/_nfpb/true/_pageLabel/tswo_page_news_content/tswo_portlet_news_singleeditorschoice1_3search/true/tswo_portlet_news_singleeditorschoice1_3channelId/2205/tswo_portlet_news_singleeditorscho%20). Thai farmers have also [protested against the proposal](http://www.worldpoultry.net/ts_wo/worldpoultry.portal/enc/_nfpb/true/_pageLabel/tswo_page_news_content/tswo_portlet_news_singleeditorschoice1_3search/true/tswo_portlet_news_singleeditorschoice1_3channelId/5/tswo_portlet_news_singleeditorschoice%20).

# *European Commission adopts new import laws*

The European Commission has completed and adopted an overhaul of European Union’s legislation on the import of poultry and poultry products. The [European Commission’s](http://ec.europa.eu:80/index_en.htm) decision consolidates into a single piece of legislation the import conditions for poultry, hatching eggs, day-old chicks, and meat of poultry, ratites and wild game-birds, eggs and egg products and specified pathogen-free eggs. These were previously laid down in some 13 different decisions.

The certification requirements for poultry and poultry products are amended and updated, and a standardized veterinary certificate lay-out of the Trade Control and Expert System (TRACES) is set out. The new decision also includes the list of third countries (and regions within them) authorized to export these products to the EU, as well as any special conditions that apply to consignments from certain geographical regions.

The aim of this new decision is to harmonize and simplify the import conditions for poultry and poultry products, reduce the administrative burden, and make the European Union rules in this area clearer and more transparent for the European Union’s trade partners.

Third countries have 6 months from the day of publication of the decision, which was October 25th, 2006 to adapt to the new conditions set out in the veterinary certificates.

# *Issues affecting Poultry Production in Guyana:*

## Feeds/Rations Formulations

Poultry producers in Guyana mainly the small farmers have been affected by low quality feeds produced by the local feed manufacturing companies. This has been evident in the growth of birds mainly broilers. In some cases birds fail to develop and are between 3 to 3.5 lbs in 6 weeks time. Many producers are ignorant or unsure as to why the birds do not reach the required weight at the appropriate time. However, there has been complaints made to the Ministry of Agriculture and the ministry has taken the necessary steps to test the feeds that are formulated. The birds are also being tested to determine weather it is a genetic problem as well.

According to the National Bureau of Standards (NBS) there are standards laid out for the formulation of feeds. However, there are no regulations in place to ensure that these standards are put in place.

To correct this situation the Government needs to set up a laboratory to test feeds to ensure that the required amount of protein etc. is available to the growing birds. This will prevent companies from producing feeds that are of low quality. **See Appendix for Local Standards.**

## Cost of Feeds

The raw materials for the production of feeds in Guyana are imported and this is mainly corn and soybean meal. This increases the cost of feeds produced. Not many locally grown materials are used in the formulation of feeds for poultry but there are materials that can be used that are present in Guyana, for example, cassava, copra meal, breadfruit etc. Of course there are restrictions to the use of these materials and these should be researched and documented. Here again the Ministry along with the Laboratory and with assistance from the University of Guyana Faculty of Agriculture and Forestry can formulate rations that will be of a cheaper cost.

The government also needs to attract investors from other countries e.g. Japan and allow these investors to grow feed materials locally. The Rupununi savannahs are ideal conditions for field crops such as corn, soybean etc. These have been grown there before. In so doing the cost of feeds will be greatly reduced. The soybean grown can even be used for the making of bio-diesel in cases where there is surplus.

Because of the high cost of feeds the cost of production of chicken in Guyana is high and the consumer pays a high price for the product. On the other hand exporting will result in lower cost per kg as the world market prices are much lower than our production cost.

## Processing of Chicken and Eggs

In most cases chickens are sold whole and cutup. However, Guyana needs to move away from the norm and start processing chicken as well. For example, pre-cooked, pre-seasoned and even processing in terms of sausages etc. needs to be looked at. There is great potential for such a development in Guyana and the world market demands these products. Even locally persons are going for chickens that are packaged into quarters etc. The local producer stands to gain more from processing than selling whole birds. Loss will also be less as less damage or death to birds will occur as they are transported from farm to market. Processing will also cater for surpluses on the market, instead of selling at a cheaper cost.

## Production Cycle

The local production industry needs to be standardized. That is there should be a cycle of production and this should be non-stop. The local Poultry Association along with the Ministry of Agriculture needs to get all the farmers together and formulate a plan to ensure that the local market is always satisfied. The inefficient production cycle that occurs haphazardly results in the consumers feeling the pressure as they are required to buy chicken at various prices year round. This is usually good for the producers and the main producers can even create shortages on the market to keep the prices high. The same occurs with the production of eggs as the prices of this also fluctuate.

## Rendering Plant

This needs to be set up to utilize poultry waste from processing. Blood, feather and bone meals can be prepared and be used in other livestock sectors. This will reduce the cost of production as processors will be able to sell their waste materials to the rendering plant.

Rendering plants perform one of the most complementing functions for modern slaughterhouses. They recycle dead animals, slaughterhouse wastes, and supermarket rejects into various products known as recycled meat, bone meal, and animal fat.  These products are sold as a source of protein and other nutrients in the diets of dairy animals, poultry, swine, pet foods, cattle feed, and sheep feed.  Animal fat is also used in animal feeds as an energy source.

One estimate states that some 40 billion pounds of slaughterhouses wastes like blood, bone, and viscera, as well as the remains of millions of euthanised cats and dogs passed along by veterinarians and animal shelters, are rendered annually into livestock feed.  This way they turn dairy cows, other cattle and hogs, which are natural herbivores (vegetarians), into unwitting carnivores (non-vegetarians).

The dead animals and slaughterhouses waste which rendering plants recycle includes:

* Slaughterhouses waste such as heads and hooves from cattle, sheep, pigs and horses, blood, bones, etc.
* Thousands of euthanised cats and dogs from veterinarians and animal shelters
* Dead animals such as skunks, rats, and raccoons
* Carcasses of pets, livestock, poultry waste
* Supermarket rejects

## Observation of HACCP in Poultry Processing

**Processing Steps: Figure 1.**

**Unloading, Hanging, Stunning, killing, Bleeding**

**Scalding/Picking/Head Removal/Singeing/**

**Washing/Hock cutter /Transfer/Rehang / Pinning**

**Oil Gland Removal/Neck Breaking/Venting/**

**Opening**

**Evisceration/ Presentation**

**Lung/Crop Removal Neck Removal/Harvest**

**House Inspection/Trim**

**Reprocessing**

**Salvage**

**Final Wash**

**Liver/Heart Harvest Gizzard Harvest/Peel**

**Chilling – Carcass/Necks/Giblets**

In the above processing flow chart, the three most critical areas are scalding, evisceration and chilling.

In scalding depending on the microbiological content of the bird’s body as it comes into the processing plant, contamination can occur. The water therefore needs to be at the correct temperature of approximately 60oC. Ideally water should be added continuously and the used water replaced to reduce build up of contaminants. Evisceration is also important as any breakage of the gut can result in bacterial contamination of the meat. The requirement for bacterial count is

Again the Guyana National Bureau of Standards has standards laid out in their Code of Practice for poultry processing. However, there are no regulations to ensure that these standards are put into place. The veterinary Public Health Unit of the Ministry of Health is responsible for inspecting premises to ensure that the required standards are met. **See Appendix for local standards.**

## Acquisition of Export Market

Guyana needs to acquire export market if development in the poultry industry is to be sustained. Therefore the need to process and package chickens under hygienic conditions needs to be looked into immediately. This is one of the main reasons why Guyana cannot tap into the CARICOM market.

The answer to this problem is an independent processing plant set up and run by the government or the local poultry association. This will deal with all the processing for export. If the Guyanese public finds nothing wrong with the local processors then it is fair to say that they can continue to buy from them. However, if you are health conscious and would like to have poultry meat that is free from food poisoning organisms then your best choice would be to buy from the processing plant where the conditions would be ideal to prevent microbial contamination of meat and meat products.

## Educating Local Farmers

Education of local farmers, on the husbandry practices and feeding regimes of various birds is an important issue. Majority of the farmers are small farmers growing between 100 to 1000 birds per cycle. These farmers need to be helped to achieve maximum production from the birds. From experience and discussion with persons growing chickens for home use, there is clear evidence that these persons are unaware of the exact feeding regimes of these birds. Some of these growers feed starter ration from day 1 to finish. However, the ideal feeding regime is to feed starter from 1-21 days, grower from 22-35 days and finisher ration from 36-42 days.

Farmers that are processing chickens need to be told of the requirement and the need to produce healthy foods. They also need to be told of the dangers of such mal practices. From basic understanding of the situation it is clear that persons are ignorant of what is required. For example, chicken can be seen out in the sun for hours after is killed and plucked with no genuine effort to chill or keep in cold storage. The health department that is responsible for the inspection of food and food products needs to be more proactive in dealing with this situation.

## Response to Avian Influenza in Guyana

Guyana continues to be vigilant and has prepared a National Influenza Preparedness Plan. The Animal Health Technical Committee developed a draft animal health and surveillance work-plan which focuses not only on the commercial poultry industry, but also the domestic and backyard chicken rearing practices and wildlife activities. In Guyana, Even though no travel restrictions or screening measures are advised at this time, the Ministry of Health and the Ministry of Home Affairs are working to improve the surveillance at all International Ports of Entry. The National Committee is advising that international travel remains safe. The National Influenza Preparedness Committee has also reported that the other technical sub-groups: Surveillance (including Monitoring and Evaluation), Information and Communication and Health Services are currently developing individual strategy plans to further prepare for any possible introduction of Avian Influenza into Guyana.

Guyana has acquired the TAMIFLU Drug which is considered to be a first responder to the Bird Flu. The New Guyana Pharmaceutical Corporation (GPC) has received a supply of raw materials for the local production of Tamiflu. Guyana will keep raw materials in stock for the production of over100, 000 doses of Tamiflu.

In an effort to advance Guyana’s veterinary diagnostic capacity to facilitate testing for avian influenza and other poultry diseases, USAID through its GTIS Project implemented by CARANA Corporation provided training and purchased laboratory equipment valued at US$40,000 for the Ministry of Agriculture’s new Veterinary Diagnostic Laboratory. An additional US$30,000 has been allocated for future training needs and laboratory supplies.

With the additional USAID funding, the Guyana Poultry Producers Association (GPPA) and Ministry of Agriculture will soon purchase test kits for other poultry diseases; a countrywide survey and a poultry disease status for Guyana will be completed. According to the president of the GPPA, this will be the first step in getting our poultry certified for export to CARICOM countries. Once a market is established, it is estimated that three million pounds of poultry products can be exported per month

Originally, the lab was established to test for the major poultry diseases- Marek’s, Newcastle, Bronchitis, Fowl Pox—but because of the worldwide scare with avian influenza, focus has shifted to the testing for bird flu. A countrywide test for bird flu was carried out; during the time workshops were held sensitizing and teaching farmers about the potential pandemic. During preliminary lab training with technicians from the Ministry of Agriculture, Ministry of Health’s Food and Drug Department (FDD), and the University of Guyana, 900 blood samples were tested for the bird flu virus. All were negative.

## Stunted Growth of Chickens in Guyana

In Guyana, presently there is a problem with Stunted Chickens, recently farmers have complained of a problem of their chickens reaching market age but not market weight. Steps were taken by the ministry of agriculture to determine the reasons for this apparent disorder. It was assumed that the problem lies with the feed, however, to-date no conclusive evidence has been obtain to confirm that the feed is indeed of a lower standard than usual.