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Diseases as important factor affecting increased poultry production in Uganda

Krankheiten und ihre Bedeutung auf die expandierende Geflügelhaltung in Uganda

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1 Introduction

In developing countries, nutritional deficiencies, both quantitive and qualitive pose one of the main constraints on the health condition and productive efficiency of the population. In Uganda, a large number of people do not have an adequate and a regular intake of animal protein. According to the report of the Livestock Services Project by the Agricultural Secretariat of the Bank of Uganda (1989), animal protein is considered to form only 3% of the diet of the population. In rural areas, even in homes where cattle are available, tradition coupled with the difficulty of replenishing the stock have limited the number and the rate of cattle slaughtered for meat consumption, while in urban centres, the socio-economic problems and the high cost of meat have denied many families access to this source of animal protein. There is thus evident need for an alternative source of animal protein to that provided by cattle. Poultry production provides a relatively cheaper and quicker means of availing animal protein to the people through the production of eggs and table birds. The increased production of eggs and table birds will in addition to providing an additional source of animal protein also improve the socio-economic status of the farmer through the sale of poultry and poultry products.

2 Diseases

In the recent past, a large number of people in and around Kampala and other major towns have taken up poultry farming. In order to meet the requirements of the fast growing population of the country, there is a need for improved and increased poultry

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production. However, there are a number of factors which put a great constraint on increased poultry production in the country. These factors are mainly disease, lack of appropriate drugs and vaccines, improper treatment and control measures, improper feeding both quantitatively and qualitatively, improper management of hatcheries, improper management of poultry farms and lack of interest or wrong motives for poultry farming. Diseases and pathological conditions affecting poultry are many and varied. Large volumes of literature exist on different diseases or conditions affecting poultry (HOFSTAD, 1984; WHITEMAN and BICKFORD, 1983). Although many diseases and pathological conditions affecting poultry are known, some of them are restricted to only a particular country or region, while others are world wide in their distribution.

In Uganda, the range of diseases and pathological condition affecting poultry is hitherto not precisely known. According to the recent report of the Livestock Sevices Project (1989), only six poultry diseases are known to occur and that no infomation exists in the country on a number of poultry diseases (Tab. 1).

Tab. 1: An Inventry of Poultry Diseases in Uganda.*

A.	Diseases known to exist	2.	Avian Laryngotracheitis
1.	New Castle Disease	3.	Infectious Bursal Disease
2.	Fowl pox	4.	Avian Encephalomyelitis
3.	Marek's Disease	5.	Avian Leukosis
4.	Fowl typhoid	6.	Avian tuberculosis
5.	Fowl Cholera	7.	Pullorum disease
6.	Coccidiosis	8.	Mycoplasmosis *(M. gallicepticum)*
B.	Diseases for which no information exists	9.	Infectious coryza
1.	Avian Infectious Bronchitis	10.	Avian spirochaetosis

* Report of the Livestock Services Project by the Agricultural Secretariat of the Bank of Uganda, 1989. Written by a team of experts. Their sources of information were: FAO/WHO/OIE Animal Health Yearbook 1987 supplemented by information from archives, Department of Veterinary Services and Animal Industry, Uganda.

However, from cases that have been brought and examined in the Department of Veterinary Pathology of Makerere University, a number of poultry diseases and pathological conditions have been diagnosed (Tab. 2). Out of these, New Castle Disease (NCD), Fowl Typhoid, Pullorum Disease, Fowl Cholera, Colibacillosis, and Coccidiosis, are the most common diseases and the ones that cause greatest economic losses to the poultry industry.

New Castle Disease is a viral infection of domestic poultry and other birds caused by paramyxo-virus. The disease has a world wide distribution although it is now eliminated from certain countries. It was first reported by DOYLE (1927). The clinical forms and the lesions produced by the disease, vary greatly depending on the strains of the virus, the species and breed of the animals, the age and the immune status of the animals as well as the nutritional and management practices. Five clinical forms of the disease are

Tab. 2: Preliminary Lists of poultry diseases diagnosed in the Department of Veterinary Pathology, Markerere University between April 1985 and December 1990.

Viral Disease	Bacterial Disease	Chlamydian Disease	Fungal Disease	Protozoan Disease	Helminthic Infestation	Nutitional & Metabolic Dis.	Others
New Castle Disease	Fowl Typhoid	Avian Chlamydiosis	Aspergillosis	Coccidiosis (Caecal and Intestinal)	Gape worms (*Syngamus trachea*)-*trachea*	Avian encephalo-malacine	Congenital defects
Fowl pox	Pullorum Disease		Aflatoxicosis	Black head Disease	Capillaria sp. -oesophagus and crop	visceral and ariticulur goit	Neoplasms
Avian leukosis	Fowl Cholera		Candidiasis		Tetrameres — proventriculus	Fat liver syndrome	Perforation of gizzard by nails
Marek's Disease	Colibacillosis				Acquaria sp.- gizzard	Rickets	
Avian laryngotraheitis	Myco plasmosis				Ascaridia sp., Capilloria sp.,various tapeworms -Intestine	Perosis	
	Nerotic dermatitis				Aeterakis galeinarium -caecum		
	Streptococcal infection						

now known to occur (HOFSTAD, 1984). These are the Doyle's forms, the Beach's form, the Beaudette's form, the Hitchner's form and the Avirulent enteric form. There are many strains of NCD virus which vary widely in their pathogenicity. These are known as velogenic, mesogenic and lentogenic strains. According to the tissue tropism, these strains are referred to as viscerotropic, affectic mainly the digestive tract and lymphatic tissues, pneumotropic, affecting mainly the respiratory tract and neurotropic affecting mainly central nervous system. The most virus and the mild form of the disease is caused by the lentogenic strain. Most vaccines against NCD are prepared from the mild lentogenic strain and such vaccine usually produce a weak immunity which has a short duration. This calls for the need of frequent revaccination to maintain the immunity. Vaccines that are made from more pathogenic strains normally produce a stronger immunity that last longer but has the danger of producing deaths in unthrifty birds.

Although NCD is known to occur in Uganda, there is no clear information as to which strains and pathotypes of the disease occur in the country. However, from the limited studies carried out at the Department of Veterinary Pathology, most cases of severe deaths and losses in poultry in NCD outbreaks are due to the virulent velogenic viscerotropic strains of NCD virus.

Fowl typhoid and Pullorum disease are bacterial diseases affecting poultry and are caused by *Salmonella gallinarium* and *Salmonella pullorum* respectively. Pullorum disease usually affects young chicks while Fowl typhoid normally affects adult birds. In some parts of the world, including parts of Europe, *S. pullorum* and *S. gallinarium* are considered to be the same species and reports of Pullorum disease in these areas may indicate either Pullorum disease or Fowl typhoid (HOFSTAD, 1984). In the past both Pullorum disease and Fowl typhoid were not considered to occur in the country and therefore their danger to poultry industry was overlooked. However, we have now confirmed the presence of these diseases in the country and currently they are among the most common causes of death and losses in chickens. Both Pullorum disease and Fowl typhoid can cause a great economic loss to poultry industry not only because of the diseases and deaths they cause, but also because of the transovarial transmission of the causative organisms from infected adult chickens to hatched chicks.

Fowl Cholera is normally an acute septicaemic disease of poultry and other birds characterised by a high morbidity and mortality. The lesions in the affected chickens usually consist mainly of petechial and echymotic haemorrhages under serous membranes, in musous membranes, in abdominal fat and on the heart and gizzard. Enteritis affecting the upper intestine is frequent. Diffuse streaking of the liver and some small foci of liver necrosis are known to occur. Chronic from of the disease characterised by localised inflammatory lesions involving wattles, joints, tendon sheath, conjunctival sac, infraorbital sinuses, nasal turbinates, and middle ear are reported to occur (WHITEMAN and BICKFORD, 1983). Deaths and lesions in chickens due to Fowl Cholera have attributed to losses in poultry industry in the country.

Avian Coli-bacillosis is a bacterial disease of chicken caused by *Escherichia coli* either as a primary or secondary pathogen. A variety of forms or syndromes of the disease have been identified in poultry. These include Coligranuloma, omphalitis, acute septicaemia, enteritis, panophthalmitis, salpingitis, eirsacculitis, synovitis and arthritis and New Duck Syndrom. In Uganda the most common forms encountered are the omphalitis, which affect mainly young chicks, acute septicaemia affecting young and mature birds and enteritis which affects any age.

Avian coccidiosis is a disease caused by *protozoa* which affects poultry and other birds. It is characterised by enteritis and diarrhea. Coccidiosis affects primarily the intestinal tract. In Uganda, coccidiosis is one of the most common diseases which affect chickens. Until recently, only caecal coccidiosis caused by *Eimeria tenella* was known to exist in the country. However, a number of cases of intestinal coccidiosis have been diagnosed in this department and according to our prelimary statistics, intestinal coccidiosis is more common than coecal coccidiosis. The birds affected with intestinal coccidiosis usually are in a very poor nutritional status as a result of maldigestion and malabsorption due to the severe destruction of the intestinal mucosa by the different developmental stages of the coccidia organisms.

3 Treatment

There are thus a number of diseases that are known to affect poultry in the country. This requires that appropriate drugs and vaccines be available to treat or control them. Unfortunately this is not the case and the limited number of drugs and vaccines on the market means that some diseases may not be effectively treated or prevented through vaccination. In this way, lack of appropriate drugs and vaccines thus becomes a limiting factors in increased poultry production. The lists of poultry drugs and vaccines currently present in the country is given in Tab. 3.

Tab. 3:Poultry drugs and vaccines which are currently available in the country*

Prophylactic and Therapeutic drugs	Vaccines
Onytricin^{R} (tetracycline + vitamins)	New Castle disease vaccine
Tetracycline hydrochloride 10%	Fowl pox vaccines
Sulphur drugs (Sulfadimethoxine,	
Sulphurdime 25%, Intradine 16%	
Intradine 33% and Sulfadime^{R})	
Piperazine citrate 53%	
Vitamines (Multivitamine poultry.	
Multivitamin injectable ADE)	
Amprolium/Furaltudone 20/20	
Coopermycine egg formula	
Coopermycine chick formula	

* The lists of the drugs and vaccines available in the country tend to vary from time to time. This list was compiled in February 1991.

Treatment and control programmes are measures aimed at overcoming disease problems. However, in order to achieve this, correct disease diagnosis is a prerequisite. This will enable recommeded and effective drugs to be used as well as the institution of appropriate control measures. Unfortunately, in Uganda, most of the treatment and control measures carried out against poultry diseases are based only on tentative diagnosis and rarely on correct or definitive diagnosis. This means that the drugs administered and the control measures adopted may not be the appropriate ones for the treatment and control of the diseases in question. Such treatment and control measures will drain the financial resources of the farmers and the nation without achieving the desired goal. It is therefore important that in order to achieve improved and increased poultry production, emphasis must be put on correct disease diagnosis from which various treatment regimes and control measures should ensue.

4 Feeding

Proper feeding of poultry with the right quantity and quality of feeds are very essential for improved poultry production. Poultry which are kept intensively are very demanding in their nutritional requirements. This entails them being given feeds which contain all the ingredients that are required in their correct proportions (balanced diet) and in sufficient quantities. Furthermore, because the nutritional requirements of poultry vary with their age and the purpose for which they are being raised, care must be taken to ensure that these requirements are met.

A number of factories manufacturing poultry feeds in the country have sprung up in the recent past. Most of these are in and around Kampala. In addition there are some farmers who prepare home mixed feeds themselves. Commercial feeds are supposed to fulfill all the requirements expected of a good quality feed. However, cases occur where some batches of poultry feeds from poultry feed factories are deficient in one or the other ingredient. Such feed may cause deficiency diseases like avian encephalomelacia, rickets, avitaminosis and perosis, all of which have caused great losses to the poultry industry in the country. Furthermore the feeds supplied to poultry must not only be of high quality, but must also be of sufficient quantity. Poultry given high quality feeds but insufficient quantities will show signs of undernourishment or malnutrition and will not perform well. Where both the quality and quantity of feeds fed to poultry are low the negative effect on their performance will be very marked. Such birds usually have a weak immune response and resistance to infection, this readily predisposes them to infection as compared with those birds which are well fed both qualitatively and quantitatively.

5 Hatchery

To meet the needs of many poultry farmers and to booster poultry production it is important to have constant and adequate source of day old chicks. A number of

hatcheries have of late sprung up in and around Kampala. In order to maintain a constant supply of healthy day old chicks to farmer, hatcheries must be properly managed. This requires that hatcheries must obtain their hatching eggs or day old chicks to be used as parent stock from disease free stock and they should have a proper management of nest boxes. Since the parent stock either as day old chicks or as fertilized eggs are normally imported, the ideal think would be to screen them against certain diseases like fowl typhoid, pullorum disease, avian leukosis and other diseases which are known to be transmitted transovarially. However, because of lack of diagnostic facilities, this is usually not done, so that the risk of introducing some diseases into the country and disseminating them through the sale of day old chicks to poultry farmers is indeed real, and has recently been experienced by most hatcheries operators and poultry farmers in and around Kampala. Proper management of hatcheries with the maintanance of a high standard if hygiene would ensure the production and the sale of good healthy disease free day old chicks to poultry farmers.

6 Management

The supply of good healthy disease free chicks to poultry farmers is in itself not the magic formular to increase poultry production. Central to this is the proper management of the poultry farms. A good and properly managed poultry farm will fulfill the recommended requirements in poultry farming in respect to the poultry houses, litter and litter management, feeding regimes, vaccination and disease control measures and proper hygiene practices. Such poultry farms will have little disease problems with not much expenditure on drugs and treatment. In Uganda poor management of poultry farms is a great limiting factor to increase poultry production. In many cases, the poultry houses are below the recommended standard, the management of litter is poor, feeding is inadequate both in quality and quantity and the vaccination and disease control measures are not rigidly practiced or adhered to. Because of these a number of managerial, nutritional and infectious diseases are causing a lot of losses to poultry and great sum of money is being spent on drugs and treatment of such diseases which would otherwise be prevented by proper management practices.

Good and proper management of poultry farms demands that farmers be motivated by their interest in and their knowledge of poultry farming and that sufficient time be devoted to the business. Many poultry farmers in the country however appear neither to have the interest and knowledge nor the time for poultry farming. Because of the harsh economic condition in the country, most farmers have taken to poultry farming motivated not so much by their interest and knowledge in the enterprise but rather by the desire to have additional source of income. For that matter therefore more attention is drawn towards the output rather than the input, to the point where they even deliberately try to economise on the feeds, disease treatment and control measures with the sole aim of maximising the profit therefrom. In some cases, no sufficient time is given to running the farms. As a result therefore, the management of such poultry

farms are usually poor and diseases and many problems due to managerial factors become rampant thus severely affecting increased production.

7 Conclusion

In conclusion, it is suggested that in order to bring about increased and improved poultry production in the country, a detailed inventory of poultry diseases occurring in the country must be obtained, relevant drugs and vaccine must be made available, correct diagnosis must be made before treatment and control measures are instituted, quality control of poultry feeds must be put in place and enforced and education of farmers through extension services, seminars, workshops, radio and television programmes should be carried out.

Zusammenfassung

In der Arbeit werden die wichtigsten Krankheiten des Geflügels in Uganda beschrieben. Auf ihre Behandlung wird eingegangen, ferner auf das zur Verfügung stehende Futter, die Situation der Brütereien und das Management der Geflügelhaltung. Um die wachsende Geflügelhaltung zu verbessern, wird eine detaillierte Bestandsaufnahme der Krankheiten vorgeschlagen. Korrekte Diagnosen müssen erstellt werden, die entsprechenden Medikamente vorhanden sein, Kontrollen sind zu institutionalisieren, um entsprechend behandeln zu können. Das Futter ist auf Qualität zu kontrollieren und den Geflügelhaltern soll durch Seminare, Radio- und Fersehprogramme Beratung angeboten werden.

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