

# THE IMPORTANCE OF DISEASE CONTROL PROGRAMME IN LIVESTOCK PRODUCTION

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## INTRODUCTION

Mr. Chairman, distinguished guests and colleagues. I first of all want to express my sincere gratitude to the National Executive of Nigerian Society for Animal Production for inviting me to present a paper to this important gathering of scientist, educators, practitioners and administrators in animal production.

The topic assigned to me is "The importance of disease control programmes in livestock production". The very well known definition of disease which essentially says departure from normal physiologic functions of cells or tissues organ or body as a whole makes my area of coverage extremely extensive. For instance, in what I consider the order of importance as far as livestock production in this country is concerned the following diseases must be considered:

1. Bacterial and viral infectious diseases.
2. Nutritional and metabolic diseases.
3. Parasitic diseases.
4. 'Myopia' disease.

This paper confines itself primarily to comments and suggestions not so much on the diseases themselves but on their significance to us and ways and means of controlling and/or erradicating them so as to effect a healthy and more efficient livestock industry.

### *Viral & Bacterial Diseases:*

By way of historical background on infectious diseases I would like to quote late Dr. R. S. Marshall (Former Inspector-General of Animal Health Services in Nigeria) when he wrote "The decision to establish an official Veterinary Department in Nigeria was taken in 1913 as a

result of representation made to the Nigerian Government by the German Government of the Cameroons with particular reference to inter-territorial movement of livestock and the wide spread existence of rinderpest following the earlier pandemic of this disease. The Veterinary Department appeared for the first time in the Nigerian Estimates of 1914—15, with the financial provision amounting to £9,600. Initially the headquarters of the department was sited at Zaria in the Northern Provinces."

Rinderpest, remained indeed the greatest single constraint in livestock production in Nigeria for a long time. The disease was introduced into Nigeria during the great Southward movement (from across the Red Sea to South Africa) of the disease in Africa during the period, 1890—1900 which became known as the "historical cattle plague" in West African where in some outbreaks, the mortality reached 98%. For instance in Nigeria, records show that in 1927 alone there was the following mortality in cattle due to the disease: 42,480 in Sokoto, 23,000 in Zaria, 20,500 in Adamawa and 8,000 in Bauchi Provinces. Through the efforts of veterinary authorities all over the country, the research station in Vom which produces the effective vaccines and joint international projects (JP 15) the disease has been reduced from pandemic status to extremely sporadic status today. It has not been 'licked' yet but its devastating effect on our livestock has certainly been 'beaten'.

Although Foot and Mouth disease does not present the same magnitude of threat to our livestock as rinderpest once did, it is a viral disease of major importance in this country. It is now established that the

disease is endemic in the country. Of the seven serotypes of the virus, four are so far known to exist in the country. The significance of this disease to livestock production include:

- (a) Adult mortality of up to 5% especially in complicated cases and calf mortality which may be up to 50%.
- (b) Reduction in milk production and severe weight loss during the two to three weeks of the course of the disease.
- (c) Export restrictions, if we ever get to the point when we start exporting meat.

There is no definite control and or eradication program in the country yet, but plans are afoot for a comprehensive survey on the extent and distribution of the disease in the country. This will then form basis for formulating a definite control policy. For now, restricted vaccination using a polyvalent inactivated vaccine is practiced in some closed herds all over the country. For the Fulani herds restriction of movement for 2—3 weeks is all that is imposed on the herd in the face of an outbreak.

Now that the incidence of rinderpest is so low in this country other mucosal and mucosal like viral diseases will have to be watched for and may become significant diseases to be reckon with. These include Bovine Virus Diarrhea, Bluetongue, Infectious Bovine Rhinotracheitis, Infectious Pustular Vulvovaginitis and Bovine Malignant Head Catarrhal Fever, just to mention a few. There has already been few reports indicating either the detection of antibodies or in some cases actual isolation of the viral agent of some of these diseases. Recently Lumpy Skin Disease, Bovine Ephemeral fever viruses were stated and identified in Nigeria.

The significance of these diseases to livestock production when they occur lies primarily in their causing abortions, calthood mortality, weight loss and

stunted growth. Some are also of diagnostic importance because of the similarities they have with rinderpest. There are several research scientist in this country working in various aspects of these diseases especially the survey aspect to establish whether or not they exist and to what extent.

A rinderpest like disease of primarily goats, but also affects sheep known as Pestes Des Petis Ruminants (PPR) or Goat Catarrhal Fever or "Kata" has in the recent years spread in the country to the extent that it is now the most important infectious disease of sheep and goats in this country. In an outbreak the morbidity may easily be 100% especially in goats, and mortality may be 20—50%. Scientists are now hard at work deciphering the complex nature of the disease and hopefully will soon come up with definite ways and means of controlling the disease. Meanwhile the unofficial control method is to vaccinate the goats/sheep with the tissue culture rinderpest vaccine at half dose. This is seen to at least reduce drastically the morbidity as well as mortality.

Viral diseases of importance to poultry production in this country of course include new castle disease, fowlpox, Mareck's disease and Gomboro disease. Routinely, poultry are now being vaccinated against newscastle and fowlpox diseases. The use of Mareck's and Gomboro disease vaccines is now being experimented upon. Gomboro disease has assumed a very significant status to poultry production in this country; morbidity of up to 100% and mortality of 50% or more are not unheard of.

I have decided to give rabies just a passing remark here because the disease has on various occasions recently, been exhaustively dealt with. Among meat producing animals the disease is not of major importance and rarely occurs. However, its occurrence in cattle for instance always signifies the wide spread nature of the

disease in an area. There has been few reported cases of the disease in cattle in this country. For control in areas where the disease shows unusually high incidence in cattle, there is a vaccine available which is quite effective in conferring pre-exposure protection, but is of very little value in post-exposure management of the disease.

Contagious Bovine Pleuropneumonia is one of the most important bacterial diseases of cattle in this country today. Despite the national and international efforts to control the disease, it has remained endemic in some areas. The incidence of the disease has been very much reduced through a combination of vaccination and either test and slaughter method or herd depopulation in the face of outbreaks. The disease can easily attain 100% morbidity and mortality can be up to 50%. With the international vaccination program (JP 28) now under way, the chronic problem this country faces in terms of re-introduction of the disease to clean areas from across the boarder has been greatly reduced.

Other important bacterial diseases which now occur sporadically and against which there is annual vaccination program in cattle include anthrax, blackleg and hemorrhagic septicemia. The importance of these diseases lies in their high morbidity and mortality rates in all meat producing animals especially cattle.

Streptothricosis occupies a special position as a major constraint in livestock production in this country. The disease occurs in cattle, sheep and goats but assumes greatest economic significance among our cattle. The literature on the cuasative agent, epidemiology, pathogenesis, pathology, treatment and control of the disease is volunimous. The disease is basically a dermatitis caused by a bacteria, *Dermatophilus congolensis* which is normally a saprophyte. It is transmitted by direct or indirect contact. It requires broken skin to establish itself.

It has a seasonal incidence and in this part of the country is most common from June through September which is the period of highest humidity and temperature. It occurs in all breeds of cattle and its effect seems most devastating among the imported breeds like the Frasian. During the height period of the disease, 75% of the cattle herds are affected and within a herd morbidity may be up to 25% or more. There have been so many suggested regime of treatment but most are effective only in early cases; by the time there is 25—50% body coverage with the disease no treatment seem to be of value. Further more the early cases usually effect self cure with the advant of dry season!

The economic significance of the disease in our livestock include great loss of skin and hide, debilitation and death, scrotal and testicular damage leading to bull infertility, and female infertility due to vulva infection causing the animal to refuse being bred.

There is no definite control method evolved yet, but vigorous tick control measure seems to drastically reduce the incidence of the disease among herds and within a herd. Ticks are one of the most important mechanical vectors of the disease and their predilection site for infestation corresponds with those for the disease. This adds another dimension to the importance of establishing good tick programs.

With the reduction in the incidence of the more dramatic diseases of our livestock such as rinderpest and CBPP the more silent and chronic but equally as important diseases such as Brucellosis and Tuberculosis will now have to be given a far more serious attention than hitherto given. We know these diseases exist in the country and if anything their prevalence is increasing literally daily. In a limited survey done in 1973/74 Prof. S. Nuru has put the infection rate for all herds tested for Brucellosis at 6.0% and similarly Dr. I. Alhaji in 1975/76 has put infection rate

for Tuberculosis at 2.5%. Both of these are diseases of concentration hence with the current effort of settling the Fulani, establishment of ranches etc., one can expect the prevalence of these diseases to increase dramatically.

Aside from the great public health significance of these two diseases their importance in livestock production lies in the following areas: meat and milk condemnation, infertility, abortion, loss of offspring, decrease life span, decrease milk production, development of poor condition resulting in low market value, interference with herd improvement program and reduction of over-all productivity by as much as 10—25%.

The control and eradication programs for these diseases is a much more difficult proposition than of any of the livestock diseases we have tackled so far in this country. They require a much more organised approach. A nation-wide survey to determine the status of the disease in the livestock is a mandatory starting point. For both diseases the tests require individual identification, herd settlement even if it is for months only. The type of control program involved will depend upon the prevalence of the diseases. The authorities will have to be ready to pay a lot of compensation and a lot of law enforcement is required to start the program and sustain it. This can last several generations. For instance the U.S. started its tuberculosis control and eradication campaign since 1927 but is yet to finish. For brucellosis a systematic calfhood vaccination along side the test and slaughter policy will have to be involved eventually. For now, until the national survey is conducted (and there are plans to start it) some measures can be taken which should include:

1. All organised livestock farms should resolve to have a tuberculosis and brucellosis free herd; some have already been working with us to effect this.

2. Any private farm requesting this should be helped fully to achieve disease free herd.

3. There should be a more controlled marketing of milk. Milk purchase centres can be opened and all Fulanis in the area can bring in their fresh milk to the centre and get a fair price for it. This is then pasteurized and marketed as fresh or sour milk.

This system should be encouraged initially but should eventually be required. This practice is already going on in some areas; L.M.A. gets most of its fresh milk this way.

4. There should be more strict meat inspection procedure and trace back system should be eventually evolved.

The bacterial diseases of significance in poultry production in this country include fowl cholera and typhoid. Both of these are being vaccinated against. There are of course a host of other bacterial infections which are management associated and which are treatable and are controlled by good management.

### METABOLIC & NUTRITIONAL DISEASES

The nutritional and metabolic diseases have so far not received appropriate attention they deserve. They are silent and their effect is cumulative. The more dramatic among them like post parturient peresis (milk fever) ketosis or acetonemia and post parturient hemoglobinuria are very well recognised in dairy establishments. Their economic significance lies in loss of milk production, and loss of offspring and or dam (e.g. in pregnancy toxemia of sheep). Mineral deficiency diseases existing in this country have not yet been very well documented. We have already recognised some areas as being deficient in such trace element as copper/molybdenum or both and there are areas suspected of being low in iodine and so

poisoning problem involving a large number of herds for which the herd owner has paid so dearly! These insecticides are usually organophosphates or mimic organophosphates in their effect on the system. This has been going on for the past two to three years. Right now there are a couple of herds we are dealing with. This is typical of what a Nigerian can do for money! There is only one answer to all these problems and that is a concerted and more radical approach to our agriculture. This is of course a topic which has been so much talked about and we can only pray that the powers that be take it up and *really* do something about it.

### PARASITIC DISEASES

The problem of parastic diseases and their control in our livestock is such a vast area which does not lend itself to adequate coverage in so short a time. Suffice it here to mention that the importance of external parasites such as the ticks and *Glossina* in their role as disease transmitting agents in our livestock is very well recognised. The story of control of tsetsefly is as old and as extensive as the history of Veterinary Medicine in this country. The ticks are just beginning to get the attention they deserve. I believe that a lot more efforts should be put into it. Dipping pits and spray races should not be looked upon as luxury facilities, which only government owned establishments can afford. It should be made available in all nooks and corners of this country where livestock abound. It is not so hard to do if a programme is drawn for building so many each year in the state. I believe this has already been started by some states and those which have not started it, should follow example. Tick control is an all-year round activity and should be conducted as such. I will not go into the merits and de-merits of dips versus spray races here. Whatever is provided should be effectively maintained and used. I see **no reason why the users cannot be charg-**

in iodine and so on. These are more settled diseases whose problems are insidious but have to be attended to.

The most important nutritional disease in this country today is just plain starvation problem. In a typical Fulani herd (80% of our livestock is still in their hands), you may have to look hard to find a cow weighing 300kgs. around the months March to June. A combination of low feed intake and heavy parasitism would have taken their toll and the appearance of these animals during these months is usually pathetic. These combine to account in part to why our heifers have their first calf at 4—5 years and produce a calf every other year or even less.

The devastating effect of recent draught which reached its peak in 1973 is still very much fresh in our minds. It is very difficult to conceive a situation occurring in the near future when most of our livestock will be on supplementary concentrate feed especially during this time of the year. The current effort to allocate supplementary feed (cotton seed, g/nuts cake etc.) is certainly highly inadequate and most of our local stockmen do not even know that there is such a thing. One wonders where all the allocations end up. This reminds me to narate to you a very sad situation existing in this part of the country today. The Fulani man has recognised that cotton seed is a good and certainly the cheapest and most easily available source of energy and protein to his cattle. The livestock love it, so he does everything possible to purchase some, especially at this time of the year. Unfortunately, some of our business men also recognise this dire need for cotton seed by the Fulani for his livestock. It also happens that some of these business men know that they can get the insecticide-treated cotton seed meant for planting, free of charge! This is also available at this time of the year. I don't think I have to finish the rest of the story. The end result is an annual outbreak of severe

ed per head of animal because I know they will pay.

Control of intestinal parasites should go hand-in-hand with tick control. Here again this is a recognised need by our stockmen and they will pay. A deworming program of at least 3 times a year frequency should be made available to all herds which require it; and who wouldn't. I am aware of the fact that some states have some program going on in respect also but may be not extensive enough. Hence let us all intensify our efforts.

### "MYOPIA DISEASE"

This is a disease I consider more devastating to our livestock than any I have discussed so far.

I would normally not bother to discuss this topic because I would think it is a trivia and not worthy of any serious attention by the majority of us involved in livestock production in this country. Frankly, with the gigantic task ahead of us and the enormous responsibility of having to evolve a sound and functioning livestock production policy in all its ramifications in this country, I fail to see how some of us find the time to engage themselves in baseless rhetorics about who can do what between the veterinarian and the animal scientist in this field! Clearly, this is a non-issue and to make it an issue is at best short sightedness if not down right selfish and irresponsible.

Sadly enough however, this has now become a disease which for lack of a better word to use I call 'myopia disease'. From the utterances and activities of some of us, during the past few years, I am deeply disturbed by the rate at which this human disease is spreading. It is an acute, contagious and rapidly fatal disease to the mind and once contracted prognosis is at best guarded and for those who respond to therapy the convalescent period is long. Fortunately the majority of us are not affected yet. Thank goodness most of us seem also to be naturally immune to the

disease. Historically the disease was imported into the country and I must say here that the import is rather recent. I do recognise of course the fact that there are few cases who have been incubating the disease for a very long time and it is now that they are showing the much dreaded clinical signs.

As an example of the typical effect of this disease on our livestock production I would like to discuss a herd which I know was severely affected. The herd had 150 heads of imported dairy cattle. None of them had any identification tags or any other form of permanent identification. The only identification record available was in the head of one of the herdsmen who can recognise cow 'b' as daughter to 'a'. Of course on checking further it was clear that he was mixing them up in more 50% of the cases! No decent records of any kind on either reproductive or milk production performance of the cows and for milking cows all were grossly over weight. To make matters worse, in the herd there were two expensive imported bulls which were supposed to be used for breeding but no one had ever bothered with either their past or present performance record. The housing, the feeding, and disease control program were so much in disarray that no one wanted to talk about them. We were expected to do pregnancy examination and also test for such things as brucellosis and tuberculosis. Rectal examinations revealed such conditions as pre-martins, cystic ovaries, fibronic uterus and so on. Yet this is supposed to be a milking herd. In fact we found out that one of the fattest cows in the herd has not had calf in three-years! In short the establishment seemed to have no consideration for the public funds being so uselessly sank into this mass.

Gentlemen when we started investigating why all this, we found out that virtually all the personnel involved with the affairs of this herd were (and some

still are) severely affected by this disease. It seemed that the higher up one went in the line of command the more severe the clinical signs! The Veterinarians seem to think or have been told that they have no business in seeing to it for instance that these animals are placed on a proper ration for dairy cows, nor do the animal scientists seem to think that they have any business in seeing to it that these animals are on complete herd health programs. It will of course be asking too much to think of them coming together and working out a comprehensive program for the herd which will leave no doubt in the mind of anyone that this is a dairy herd and is being controlled by very well trained personnel whose sole interest and effort is to make the herd produce at maximum efficiency!

I can go on citing examples of this sad and sorrowful situation which certainly does not speak well for the men and

women engaged in livestock production. I am therefore appealing to particularly the elder members of this group (may be I should blame them) to please do all they can to give the good guidance and leadership expected to them to the large number of young men and women this country is producing annually, who will devote the rest of their lives trying to maximise the production efficiency of our livestock. The only way to do it is to work together in harmony and not in pieces! Believe me failure on your side to do this will have disastrous consequences on livestock production in this country and posterity will not forgive you for that.

With this Mr, Chairman Sir, I would like once again to thank the Executive for giving me the opportunity and I thank everyone of you for listening to what I have to say. May God bless us all. Thank you.