

EVALUATION OF THE PROBLEM OF NOMADISM AS IT AFFECTS  
LIVESTOCK PRODUCTION IN NIGERIA

by

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Submitted in Partial Fulfillment  
of the Requirements for the Degree of  
MASTER OF PREVENTIVE VETERINARY MEDICINE  
(MPVM)

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June 1978

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DEDICATION

To my wife, Pat, my daughter Tinu and  
my family in the African sense.

#### ACKNOWLEDGMENTS

I wish to express my sincere appreciation to my advisor Dr. Margaret Meyer, Professor of Veterinary Public Health, University of California, Davis, for her encouragement, guidance and valuable advice throughout the course of this study. Her encouragement and guidance has been a source of inspiration. But for her, the initial difficulty could have proved more difficult. I am also indebted to Dr. Roger Ruppner and Dr. Jude Monroe for their useful suggestions.

I also wish to express my gratitude to my colleagues in Nigeria who assisted in the collection of some of the data from Nigeria. In this regard my special thanks go to Messrs. Arokoyo and Udofia both of the AERLS, Ahmadu Bello University, Nigeria.

Finally, I would like to extend my appreciation to Dr. W. Sadler, Director, Master of Preventive Veterinary Medicine Program, the staff of the Department of Epidemiology and Preventive Medicine, my colleagues in the MPVM program and to many other American and African friends in and around Davis who contribute to making my stay in the United States a most rewarding educational experience.

## INTRODUCTION

The development of the full potential of the livestock industry in Nigeria will be very difficult to achieve if it continues to be dominated by the age-long traditional system of animal husbandry as practiced by the nomadic livestock rearers. This applies especially to the production of cattle, sheep and goats which constitute the mainstay of the country's livestock industry as it is today.

In Nigeria, approximately 94% of the cattle population, 61% of the sheep, and 68% of the goat are owned by the nomads.<sup>3</sup> They are apparently neither aware of their role nor contribution to Nigeria's livestock industry. Because of this lack of awareness, the nomads have not and are not making any concerted effort to increase their production and neither do they respond to any innovations or newly proven methods that can bring about general improvement in the animal production system.

The Fulani /Bororo (as the nomads are referred to) husband their animals in the traditional fashion. The system is essentially based on the "transhumance" practice passed on from generation to generation. They cherish their system, uphold it and are totally unwilling to trade it for any other system. The pastoral organization is based on the alternate exploitation of the two of the main ecological zones in Nigeria, the dry north and the wet south.

The nomads do not appear to raise their animals for any economic consideration. The keeping of animals has a traditional cultural value. The animals, especially cattle, are considered part of the family and are treated as such. Yet, while the death of any one animal in a flock brings sorrow to every member of the family, little attention is paid to the quality of each individual animal in the flock.

The animal's death is mourned because the social prestige of a given family in the tribal set-up is measured by the total number of animals owned by the family. The quality of the individual animal is not taken into consideration as contributory to this social prestige.

The nomads are a moving people, they wander about from place to place in search of water, grazing pasture and the avoidance of drought. There are, it seems, other socio-cultural reasons for the migration of the nomads as will be discussed later.

From time immemorial the nomads have always been the major supplier of animal protein for the entire country. There are presently no counter-indications for this situation. It is now apparent, however, that the traditional system of animal husbandry can no longer cope with the ever-increasing demand for the animal protein in Nigeria. This is reflected by the acute shortage of such proteins and also by the high prices of meat within the last ten years. For these reasons, the government can justify the importation of chilled and frozen meat, bacon, ham, canned beef and live animals. The imports are intended to augment the ever-decreasing quantities of local livestock.<sup>2</sup>

Prices of Stock Cattle Purchased at Local Markets for

Feeding at Monchock Ranch - Kobo per kg Liveweight

Month or Monthly Average	Year	Prices
Average	1968	13.8
Average	1969	15.6
November	1969	16.5
January	1970	17.4
February, March	1970	18.3
April, September	1970	20.2
October	1970	23.9
November 1970 through February 1971		27.5

Source: Nigerian Livestock and Meat Authority, Kaduna.

There is overt deficiency of protein in the diet of the average Nigerian. Though estimates of the protein requirement for the average Nigerian is set at 60 gm per day, of which 27 gm or 45% should be of animal origin, Food and Agricultural Organization has estimated that an average Nigerian consumes only 51 gm per day, of which only 6.6 gm or 13% is of animal origin.<sup>3</sup> This urgent state of affairs further strengthens the need for increased livestock production, especially since protein from animal sources is more complete than protein of plant origin. Such improved and increased livestock production can only come about through the implementation or adoption of modern methods of livestock production which makes use of innovation and technology.

Human population growth, which has steadily been on the increase, is not being accompanied by a corresponding increase in livestock population.

Human Population:

1961	1963	1965	1967	1969	1970
52.923	55.672	58.487	61.445	64.803	66.683

Source: ADN 1973 - 1985

Calculated from 1963 census figures on the basis of 2.5% <sup>annual</sup> ~~annual~~ growth-rate from 1961 - 1968 and 2.9% thereafter.

Animal Population:

	1953	1966	1968	1971	1973	1974
Cattle	5.3	10.8	11.073	10.7	11.5	8.50
Goat	7.5	21.2	27.112	27.5	23.4	22.00
Sheep	3.0	7.2	8.191	8.191	8.0	8.0
	15.8	39.2	46.376	46	42	38.5

Sources: The economic development of Nigeria 1955

FAO. Agricultural development of Nigeria 1966

Federal Office of Statistics

Federal Livestock report. Proceedings of Veterinary and Livestock Conference 1977.

Though there are no reliable figures for both human and animal population, current estimates of the number of cattle in Nigeria vary from eight to eleven million, of which approximately 95% are located in the northern part of the country under the care of the nomads.

The ratio of cattle to people in Nigeria is quite modest compared to other nations. In Nigeria the ratio is between 1:5 and 1:7 whereas for all Africa it is 1:24 and for the world it is 1:3, according to the Food and Agricultural Organization.<sup>10</sup>

The apparent decline in livestock population over the years is not the main reason why the traditional animal production system is unable to cope with the increasing demand for animal protein. Rather, I will suggest that the main reason is because high productivity has never been stressed by the nomadic herdsmen. The productivity is inevitably very low.

World meat production doubled between 1950-1970. The increases were due to increased output per animal rather than numerical acceleration in the major producing countries, such as USA, USSR, as well as the E.E.C. countries, Argentina and Australia which produce 49% of the world's beef, 1971.<sup>32</sup>

The low productivity of the nomadic herds may not be due to poor genetic potential of the local breeds of animals, as has been suggested. These suggestions were not accompanied by any scientific proof. The low productivity is definitely due to poor management practices which have been unable to bring out the potential of the animals either as meat or milk producers.

While it is true that when compared with some exotic breeds, the local breeds have lower productivity, such comparison cannot be seen to have any basis since the exotic breeds have been selected or developed through cross breeding over a period of time for use either as a milk or meat animal,

whereas the local breeds have not been manipulated breeding-wise towards any line.

The nomadic herds are kept on a maintenance level of nutrition consisting of only grass for most part of the year. There has been no extensive or prolonged research done with the local breeds with the added dimension of current technological advances applied to their maintenance as has been the case with most of the exotic breeds. There seems little argument that if properly managed, the local breeds can do much better in the area of high productivity than they currently do. This is evidenced by the performance of a local breed under different management systems.

The Influence of Management System on the Performance

(wt. in kg) of Zebu Cattle

Management System	Year			
	1	2	3	4
Nomadic/Traditional herd	114	159	205	239
Low level of supplementary feed	136	182	227	273
Mokwa cattle Ranch	159	284	400	477
High level of supplementary feed	182	330	455	

Source: Ademosun After Woodhead et al., 1971.

The seasonal movement on hooves in search of grazing pastures and water sometimes take stock long distances. As a result the animals lose weight and are also subjected to some other secondary consequences.

However, from the point of view of the traditional system of animal husbandry such movement becomes necessary since the vegetation in the north cannot support the animals during the dry season. Any weight gained during the favorable wet season in the north is lost during the dry months if the animals remain in the north during the dry season.



The Gain and Loss in Weight of Cattle of Tropical Africa

Over a Two Year Period

Average wt. at end of 1st dry season:	250 kg
Average wt. at end of 1st rainy season:	350 kg
Average wt. at end of 2nd dry season:	255 kg
Average wt. at end of 2nd rainy season:	382 kg
Average wt. at end of 3rd dry season:	307 kg

Source: Minterdorf 1963.

Realizing the role the nomads have been playing in supplying the animal protein requirements of the country and also appreciating the fact that the country must rely on this source of meat for some time to come, we are forced into a whole sequence of realizations. Owing to the uncertainties associated with sedentarizing a group of people who, for decades upon dozens of decades, have been practicing and have grown accustomed to a nomadic way of life, we have a situation which is ripe with difficulties. As an alternative to the dire consequences of attempting to enforce settlement, it would seem necessary to focus efforts in the directions of improving livestock production under the existing nomadic situation at least for the time being.

The two factors which must be faced are:

1. The nomads feel compelled to continue to move about and have no intention of altering that lifestyle at any time in the foreseeable future.
2. That we are nearly totally reliant on this source for the country's animal protein requirement.

## WHO ARE THE NOMADS IN NIGERIA

According to Theodore Monod,<sup>16</sup> nomads are "those who have no 'home' no determinate center to which they are attached and in which they have rights and obligations." In Nigeria as elsewhere they are a wandering people. And according to I. M. Lewis the word nomad has a somewhat evil connotation. "Of no fixed address, here today and gone tomorrow. Nomads are regarded as no respecters of national or state boundaries which they cross and recross with bewildering rapidity, evading arrest or taxation and avoiding some new modernizing programmes."<sup>15</sup>

Nomads in Nigeria, though not very much different from nomads elsewhere, especially as applied to Africa can better be described as a group of people that habitually shift one abode to another in search of food, water and to avoid drought. The word "nomad" is synonymous with the raising of livestock in Nigeria. The nomadic herdsmen move from place to place with their stock. Those who disappear abruptly and sometimes mysteriously will return equally suddenly when some attractive benefits appear within their sphere of movement.

These attributes are readily associated with the nomad's reputation for preferring numbers to quality in herd management and his frequent reluctance to participate in betterment schemes even when these are specifically designed to improve his livestock and their access to natural resources.

Allan<sup>15</sup> said of nomadic pastoralism as "inherently self-destructive" since the systems of management are based on a short-term objective of keeping as many animals as possible alive without regard to the long-term conservation of land resources.

Certainly, there is neither reason nor incentive for him to leave any grass behind nor to do anything to improve the pasture for future use since

he knows that as soon as he departs another herding unit might move in and graze off the remaining grasses.

It is therefore to his advantage to graze off every available blade of grass before moving to the next location because the source of the next feed may be far away. Even then, the nomadic herdsmen have no guarantee that future grazing pasture will not already be grazed-off by a preceding herd.

Though the nomads in Nigeria are similar to their counterparts elsewhere, and do not have a permanent place of residence, they are to be found predominantly in the northern areas of the country. They stay in this region for most parts of the year, excepting the dry season. During this dry season, they make their nomadic journeys to the wet southern regions. Despite their nomadic practices some herdsmen do have a sentimental or emotional attachment to a particular location to which they frequently return under favorable climatic conditions. Even this particular place is not truly considered to be their home however.

Based upon the degree to which certain nomadic practices are implemented, the nomads of Nigeria can be classified into three categories.

1. The Nomads Proper:

This group is generally referred to as Bororo. Despite the longevity of their associations with other tribes like the Hausa and the Kanuri, they maintain their own identity.<sup>30</sup> Incorporated in this identity are their language and their cultural traditions whose values have given meaning to their existence through generations of pastoral living.

Compared to other groupings, the bororo usually have larger-sized herds. They typically maintain over 100 head of cattle with accompanying flocks of sheep and goats. Cattle are the primary herds which contribute to the identity of this group. Foremost in the mind of the bororo is the

recognition of the tribal group itself. Beyond this recognition of tribal linkage is the common practice of forming small migratory or herding units. These units are frequently comprised of members of a particular family or a grouping of small families, friends or compatible herding units. Such herding units can move autonomously in search of pasture and water. The decision to move from one location to another comes within the jurisdiction of the individual herding units.

The bororo wander from the north to the south in the dry season and then back to the north during the wet season when there are rains which refresh the pastures that are the life-support system of their animals. Sometimes this nomadic movement involves the animals as well as all other members of the herding unit, women and children inclusively. This is especially true when the next designated location is within close proximity.

At other times, the movement may involve the animals and only the strong male members of the family or herding unit. The old men, women and the children are left behind at such times to be reunited with male family members under more favorable seasonal conditions. This kind of movement involves the traversing of long distances to indeterminate points of arrival.

Many bororo are reported to shift camps at least every fortnight (two weeks) and at the most every two or three days.<sup>30</sup> During the wet season in the north, these moves occur with less frequency. The bororo, as a corporate group, does not have a permanent place of abode. Even at those times when the older men, women and children are left behind caring for some milking cow, such a place is not considered a homestead.

## 2. Semi-Nomadic Cattle Owners:

This group cannot subsist by their stock rearing practices alone and are frequently transhumant.<sup>30</sup> They establish and maintain semi-permanent villages and cattle camps. In addition to their pastoral practices, they plant and cultivate mixed crops. They move about from time to time in search of fertile pastures but unlike true nomads, they usually return to their camp or village. Also unlike true nomads, some of the semi-nomadic stockowners have grazing title to certain lands. In most cases, their elders stay permanently in the villages. Movement of these groups seldom involves any members of the family.

Like the true nomads or bororo, the semi-nomadic stock owners have enough nomadic blood coursing through their veins to disdain crop farming.<sup>10</sup> Though they practice mixed farming, labor is usually recruited and usually from among other tribes for crop cultivation.

## 3. Semi-Settled Cattle Owners:

The semi-settled cattle owners are predominantly Fulanis who practice mixed farming. Unlike the true nomads, they have permanent "homes" where they remain throughout the years with the exception of brief periods during the dry season. Even when these people make their movements in search of grazing pasture and water, they do not stay far from their home location. Very rarely do all members of the family become involved in the movement and consequently those who do move with the cattle to pasture always return home again.

The size of the herds of cattle belonging to this group is usually smaller than that of the nomads and semi-nomads. Hausa is usually the first language of the semi-settled cattle owners despite the fact that they may have some blood connection with the Fulani. Though the settled stockowners may not fall under the category of the nomads, it is necessary

to recognize their role in the overall picture of livestock production in Nigeria. Despite the fact that the number of animals per household is relatively low as compared to the livestock holdings of other groups, the greater percentage of the smaller livestock population of sheep and goat are cared for by this group of people.

#### CAUSES OF NOMADIC MOVEMENTS

Though the causes of nomadic movements in Nigeria have not been thoroughly studied, it is obvious that one of the most important causes of nomadic migration is "a necessary response to poverty of resources in the physico-biotic environment relative to the requirement of the herds."<sup>12</sup>

Those resources, principally grazing pasture and fresh water, are typically insufficient especially in those areas which support livestock activity over extended lengths of time.

Nigeria has a tropical climate. It is located in the Tropic of Cancer. The southern part of the country receives higher rainfall than the northern portion. The rainy season may be as short as three months in the far north. The average rainfall in this area is about 50 cm. as compared to an average rainfall of about 400 cm. per an eleven month period in the extreme south.

As a result of the annual rainfalls, there are three broad vegetation zones:

- (1) the tropical rain forest in the south
- (2) the Guinea Savannah of the middle belt and
- (3) the Sudan Savannah of the dry north.

The nomadic livestock system is based on the exploitation of these ecological zones. It stands to reason that while the majority of animals are located in the north, they must be moved toward the south as grass and rain yields become depleted in the north.

Additionally, the nomads cannot stay permanently in the wet south because the southern region is infested with tsetse flies which carry the deadly animal disease called "trypanosomiasis".

There is, however, a tendency on the part of observers to over-emphasize the generalized environmental explanation for the migration of the nomads. There are certainly other reasons for this migration apart from the physico-biotic conditions.

The term "aimless wandering" which is so frequently employed to describe the nomadic migrations of so many groups is not typically applicable in the case of the Nigerian nomadic peoples. Each occasion for movement is, for the Nigerian nomad, an occasion for a necessitated choice of where and when to go.

The nomads not only consider resource possibilities in relation to location but also consider movements in relation to other herding units. They would, for instance, consider with whom it is useful to associate or at least with whom it would be the least harmful. They also take into consideration both the seasonal and the human elements which would be the most desirable to avoid.

Apart from the search for pasture and water there are, therefore, socio-cultural reasons for the nomadic movements.

#### EXTERNAL ADMINISTRATIVE INTERFERENCE

Certain governmental or administrative arrangements sometimes interfere with nomadic movement. The establishment of government ranches or the construction of new dams may take away land which was previously grazed by the nomadic herds. These herds are then forced to shift their locations and to search for alternative grazing lands. "As a result of construction of the Kainji dam on the River Niger, the water in the Benue and its

tributaries run off more quickly. Consequently, many streams dry up earlier, therefore forcing pastoralists to find alternative grazing areas."<sup>10</sup> Major migrations involving many herding units as well as migratory drifts are the result of such external political decision.<sup>28</sup>

#### HOW NOMADISM AFFECTS LIVESTOCK PRODUCTION IN NIGERIA

The nomadic or transhumance system of livestock husbandry affects livestock production in Nigeria in a number of ways.

The nomads in Nigeria live in a state of almost perpetual wandering, moving south in the dry season and moving back to the north during the wet season.

The movements affect the animals in a number of ways and subject them to secondary consequences.

a. The animals are transported on hoof during the movements which cover varying distances. The primary consequence of such movement is that the animals suffer from a serious weight loss. As a result, they become stressed, lose resistance to infectious agents and they become more susceptible to some of the diseases which they encounter enroute.

b. The seasonal movements bring different herding units together at varying locations. As a result of contact between different herding units, disease is spread rapidly. This is a common feature in the practice of nomadism.

c. Though there is the problem of disease epidemics due to the nomadic movement, the major cause of annual loss to the livestock industry is due to weight loss, poor productivity, poor reproductivity and the like. The scarcity of animal protein is not due, specifically, to deaths from diseases. The seasonal movements, the lack of adequate grazing sites, the low quality of the dry season herbage, all combine to create hardship



upon the animal industry. This combination of circumstances when coupled with the toll taken by helminths, trypanosomes and other debilitating parasitic agents account for the high ratio of weight loss in livestock.

d. Although there has not been much work done which would lend support to this claim, herding units do not generally encounter serious death loss during migration. This is probably due to the fact that the majority of the nomadic herds are comprised of older, more disease resistant animals who have survived prior exposure to potentially fatal infectious agents.

Trypanosomiasis is the most important disease in animals which are herded from the south of Nigeria to the north. It is a highly debilitating disease and its effect is illustrated in the table below:

Trek Costs Resulting from Trypanosomiasis Control Program

<u>Sokoto to Ibadan</u>			<u>Kano to Ibadan</u>		
<u>Category</u>	<u>Cost/Animal</u>	<u>% of Total</u>	<u>Category</u>	<u>Cost/Animal</u>	<u>% of Total</u>
Mortality Cost	0.82	6.3	Mortality	1.06	7.8
Salvage Cost	1.66	12.3	Salvage	2.16	15.9
Shrinkage Cost	4.50	34.7	Shrinkage	3.46	25.4
Other Expenses	0.80	6.2	Other	0.80	5.9
Drover's Fee	2.02	15.5	Drover	2.38	17.5
Food Money	0.26	2.0	Food Money	0.30	2.2
Interest Cost	1.04	8.0	Interest	1.20	8.8
Feeding Cost	1.88	14.5	Feeding	2.24	16.5

Trek Costs With No Applied Control Program

Sokoto to Ibadan			Kano to Ibadan		
Category	Cost/Animal	% of Total	Category	Cost/Animal	% of Total
Mortality Cost	1.64	9.0	Mortality	2.12	8.0
Salvage Cost	3.32	18.2	Salvage	4.32	16.2
Shrinkage Cost	7.24	39.8	Shrinkage	13.26	49.8
Other Expenses	0.80	4.4	Other	0.80	3.0
Drover's Fee	2.02	11.1	Drover	2.38	9.0
Food Money	0.26	1.4	Food	0.30	1.1
Interest Cost	1.04	5.7	Interest	1.20	4.5
Feeding Cost	1.88	10.3	Feeding	2.24	8.4

(Source: Agricultural Development in Nigeria, 1973-1985)

LIMIT OF DEVELOPMENT

e. The nomadic system has little or no tolerance for the kind of development envisioned for the rest of the Nigerian livestock industry. This is attributable to a number of factors. The basic reliance of the nomadic animal husbandry system upon existent natural forage--grass--and because the system is neither amenable to innovation nor research and technology it seems futile to attempt to convert existing nomadic systems to modern methodology.

CULTURAL

f. The nomads do not raise the animals in response to the needs of the country and neither do they keep livestock for any serious remunerative enterprise. The keeping of animals has its own intrinsic cultural value. The cultural imperatives are such that a man accumulates wealth in the form of large numbers of animals. He is eager, therefore, to acquire a greater number of animals. This eagerness is not reflected in basic productivity nor in the quality of the care each animal receives. Rather, the nomad is given to sloth with respect to the maintenance of

his herds. This attitude affects the livestock industry in Nigeria in three main ways:

(1) He is reluctant to sell. He sells his animals only when this is absolutely necessary for him to do so. He feels compelled to sell only when faced by such circumstances as payment of taxes, marriage expenses, and other pressing and important family financial commitments.

(2) This attitude results in the maintenance of very old and unproductive animals.

(3) Among the animals there is a very large male to female ratio. Personal observations of a good number of nomadic herds indicated an approximate 1:3 or sometimes 1:2 male-female ratio.

The mating population in most herds is unnecessarily very large and disadvantageous in the sense that most of the extra bulls are old and useless for any breeding purpose realizing a good bull can serve 30 to 50 cows. They do virtually no work but continue to consume feed and occupy space.

#### EFFECT ON DISEASE CONTROL PROGRAMS

One of the major contributory factors hindering the development of a viable livestock program in Nigeria is the high prevalence of many livestock diseases with their resultant effects on the productivity, reproduction, and existence of the animals. The economic loss to the livestock industry due to disease problems is enormous.

The major cattle diseases of economic importance are: contagious bovine pleuropneumonia (C.B.P.P.), trypanosomiasis, streptothricosis hemorrhagic septicemia, foot and mouth disease, worm infestation and pneumoenteritis in sheep and goat. Others that are of both economic and public health significance are tuberculosis, brucellosis, anthrax and

blackquarter. The list is however not exhaustive.

Huge sums of money are being spent annually in an effort to control or eradicate the major animal diseases. The various programmes that have been designed to achieve this have been rendered rather ineffective due to the attitudes of the nomadic cattle owners. The cattle owners do not cooperate with the government to make the programs work. Such attitudes are not, however, deliberate attempts to thwart the efforts of the governments or the agencies involved in the program. It is simply a matter of ignorance on the part of the herdsmen and a lack of vital appreciation for the benefits which are derivable from such programs. A review of the various livestock disease programmes will demonstrate the effect of nomadism on disease control.

#### CONTAGIOUS BOVINE PLEUROPNEUMONIA

This is probably the most important killer disease of animals, especially of cattle, and the one that receives the most attention by the various state governments and agencies responsible for livestock production in Nigeria. The current control program for the disease designated as J. P. 28 involves cooperation of states in Nigeria and neighboring countries. A massive campaign is being launched to educate the livestock owners on the importance of the disease. Massive annual vaccination of cattle is being carried out. Clinical cases are slaughtered and owners compensated accordingly. Since the spread of the disease requires close contact between affected and susceptible animals, the most effective control and eradication programme (USA) has been the prevention of contact between affected and clean herds. This is achieved by effective quarantine programmes and control of animal movement. Though this is the method adopted in Nigeria, nomadism has been a major factor

for the slow progress in controlling this disease. Cattle owners do not generally report new or suspect cases promptly until the animals start dying in numbers.

Also their usual response to outbreak of any disease has been to move out of the area and pitch camp elsewhere. This kind of movement has been responsible for the spread of the disease and major outbreaks.

Also the vaccination programme has not proved very successful because the nomads generally do not present all their animals for vaccination.

Reasons:

1. To evade tax (cattle tax now abolished)
2. They generally do not want people outside their tribe to know how many animals they have.

TRYPANOSOMIASIS

Trypanosomiasis is one of the most important disease of animals that Nigeria has to contend with. It is a very debilitating disease mainly of cattle but other animals, goat, sheep, pig and camel are susceptible.

The causal agent, a typanosome, is transmitted by the insect vector *Glossina* spp. from an infected animal to a susceptible one. The main species of trypanosome in Nigeria are T. brucei, T. vivax and T. congolense in cattle and T. simiae in swine. The control of the disease takes the form of attempting eradication of the insect vector by the use of chemical (aerial spraying) and bush clearings.

While some areas are designated as tsetse fly zones, others are free of the insect vector, e.g. the Jos and Mambilla plateaux. Those areas in the far north where the disease was non-existent now begin to have sporadic cases due to cattle migration bringing with them the infection and the insect vector.

The annual movement of the nomadic herds has been responsible for the spread of the disease in the country.

The program of prophylactic treatment of animals in tsetse fly area to protect the animals has not proved successful either due to development of resistant strains and due to the attitude of the cattle owners not making use of the opportunities offered them by the government. The program has however been very effective on government and institutional farms.

#### TUBERCULOSIS

Not many studies have been carried out to determine the importance of this disease in cattle in Nigeria. Testing of animals on some selected government farms indicated high prevalence rate.

There is no doubt that the disease will emerge as a major animal disease if properly investigated. The importance of this disease as a very debilitating wasting disease of animals and its public health importance requires that it should be looked into with vigor.

There is at present no programme designed on a state or national level to control and eradicate the disease. Its public health aspect becomes more important with the realization that in the rural communities milk is consumed raw straight from the cow. This point indicates an area of cooperation between veterinarians and human hospitals.

#### BRUCELLOSIS

Brucellosis, like tuberculosis, has not received much attention and recognition as an important animal disease in Nigeria. Though some work has been done to determine the prevalence of bovine brucellosis in northern Nigeria (Saka Nuru, 1975)<sup>21</sup> the importance of the disease is undoubtedly underestimated. This is even more true when it is realized that bovine

abortion is frequently seen in most herds and the cause is usually not known. Abortion within the nomadic cattle herd is considered God's will and in most cases these are not usually reported.

My personal feeling is that brucellosis has not received the attention it deserves as it is the disease most likely to be responsible for most of the abortion storms. Vaccination programme to control the disease even though adequate data is unavailable on the problem will be a reasonable foresight.

#### STREPTOTHRICOSIS

A skin condition of animals mainly cattle referred to locally as kirci. It has assumed an economic significance. The loss to the livestock industry as a result of the disease is enormous. The loss is due to its debilitating effect on the affected animals and also due to loss as a result of reduced quality of the hides.

The epidemiology of the disease is influenced by the nomadic seasonal movements. The disease is more prevalent during the wet, humid seasons. It is spread from an infected animal to a clean animal by insect vectors mosquitoes, etc., and by animals rubbing bodies against one another. The disease can be contained and confined to a herd if animal movement is controlled.

The attitude of the nomads has also been one of the major reasons why the disease has assumed an economic importance today. Because the nomads prefer number to quality they do not believe in culling and separation of affected from clean animals.

Other diseases which are not easily controlled because of the nomadic movements are anthrax, blackquarter, hemorrhagic septicemia, foot and mouth disease, etc.

## USE OF LAND

The nomadic animal husbandry system is basically concerned with keeping as many animals alive as possible on a short-term basis without any regard for the conservation of natural resources (pastures and soil). This attitude has rendered an appreciable area of grazing land useless since a herding unit will pitch camp on a site and use up all of the pasture due to a situation of overstocking.

## NUTRITION

The nomadic herds are not properly managed and this is especially true with respect to feeding methods. The animals are maintained on a suboptimum level of nutrition throughout the year. They are led out in the morning for grazing and make use of any available pasture with water being provided from streams and ponds. They are rarely given any supplementary feed like concentrates and minerals. Because of the low level of nutrition, the animal cannot perform their best in terms of production and reproduction.

## MIGRATORY PATTERN OF THE NOMADS

A clear understanding of the migratory pattern of the nomads will probably be the most important information necessary for a successful implementation of any program designed to improve livestock production under the nomadic situation. For instance, to be able to deliver veterinary service to a group of mobile herding units, it will be necessary to know how these units move, when they move and where they can be located at particular times of the year.

What is clearly understood as of now is that the nomads with their animals trekked southwards during the dry season and returning to their



base in the north during the rainy season. "These movements are in response to the rhythm of the ecological changes."<sup>5</sup>

Asuamah (1975)<sup>5</sup> wrote about the nomadic pastoral calendar. According to him "the nomadic Fulanis have divided the year into five seasons."

1. Seeto (windy and stormy season) Early May-June. This is the time of greatest mobility for the nomads, period during which movement from the riverine lowlands to higher grounds further north takes place. During this period there is the rush to secure wet-season grazing grounds and avoid the dispersing tsetsefly with its accompanying high incidence of trypanosomiasis.

2. Dungu (rainy season) July-September. During this period almost all the nomads are back to the northern part of the country. There is abundance of pasture and general improvement in production as evidenced by increased weight gain and milk yield. Though there is abundance of pasture and water, the nomads still move within the north over very short distance.

According to Asuamah<sup>5</sup>, reasons for these short distance movements are:

a) to prevent bovine foot infections; b) to get the herd into the best possible physical conditions to withstand the next dry season movements; and c) to avoid taxes (now abolished).

3. Yawal (hot season) October-November. This is late wet season. The animals rely on both bush and stubble grazing. Water holes begin to dry out and this season marks the beginning of southward mobility in search of water holes and river valley.<sup>5</sup>

4. Dabunde (Harmattan/cool dry season) December-February. During this period there is a general decline in the conditions, quality and availability of pasture. The animals have to be moved long distances every day to graze. They lose weight due to heat, insufficiency of feed and large distances covered daily in search of feed and water.

5. Cheedu (dry season) March-April. This is the most difficult time for the herdsmen and their cattle. This is also the period when movement to the south is at <sup>its</sup> maximum.

Though the pattern of the nomadic movement is fairly understood as described above, more work is needed in the area of understanding the movement of each herding unit. A thorough demographic study of the nomads is of paramount importance to be able to do this.

This is considered an area of further study.

#### SETTLING OF NOMADS: PROSPECT AND FEASIBILITY

Nomadism is being regarded as the major factor hindering the development of the livestock industry in Nigeria. Owing to this realization various state governments especially those in the major livestock producing areas in the north have made some concerted efforts aimed at settling the nomads. The thought was that this would make the nomads adopt modern methods of animal husbandry. The idea was facilitated by setting aside large areas of land of improved pasture and by providing conveniences such as a constant supply of water. Adequate housing was also made available to a few selected nomadic families with the hope that these families, in improving their standards of living and of livestock production, would prove exemplary to others who would emulate their modern animal raising practices.

The various attempts to sedentarize the nomads have however not met with any appreciable degree of success. In fact, most of those who agreed to participate in the programs later moved out of the area to <sup>resume</sup> ~~reserve~~ nomadic life again. The experience of Ronka grazing reserve in Katsina

area is a striking example. The attitudes displayed by these nomads further suggests that there are probably other reasons for the movements of the nomads other than the search for grazing pasture and water.

Also the failure of the program may be associated with the fact that it did not take into consideration the cultural values of the nomad. And most importantly, the various programs did not involve the nomads themselves in decisions that concern them. As Theodore Monod<sup>1</sup> rightly put, "Their fate cannot be decided without them, and this is more true when such decision involves human communities that over the centuries built up a way of life whose adaptation to natural conditions represents an ecological success remarkable in its own way as those of the Eskimos or the Pygmies." The nomads were not educated to make them see the economic advantages of sedentarization. The nomads could not perceive the opportunities that beckon them through sedentarization. Because sedentarization is a very slow process, settlement of the nomads does not deserve the priority given it in the goal towards modernizing Nigeria's livestock industry, and solving the current shortage of animal protein.

#### RECOMMENDATIONS

##### A. Education

Owing to various factors previously discussed, the sedentarization of nomadic groups has not proven to be effective in contributing any recognizable improvements or increases in the livestock production of the country of Nigeria as a whole. The focus of governmental programs must therefore shift from sedentarization to the area of education of the nomadic people.

While molding existing technological advances to fit the herding patterns of the nomadic herdsmen would be one effective course of action,

education of such nomadic groupings should be of primary importance and should precede the former. Instead of attempting to gather some nomads into one central location as has been previously attempted, members of the National Youth Service Corp would act as educators by going to the actual herding units and participating in the daily life of the nomads. Indoctrination in modern herding methods could more easily be facilitated with this approach. The on-the-site education technique would also give the Task Force of National Youth Service Corp members an opportunity to explore first-hand information of the methods currently being used by the nomads in the rearing of their livestock. Task Force members could then make those specific recommendations for improvement where they are most needed rather than attempting to revamp the entire nomadic way of life. As the nomads experiment with the various methods suggested to them, they might come to see that little by little the quality of their herds improve. The positive reinforcement of the Task Force members might take the form of praise of those herdsmen who demonstrate an interest in improving the quality of their livestock. Various incentive programs such as those previously offered might become more attractive.

Perhaps photographic illustrations of the improved living and pastoral conditions available to interested herdsmen might prove effective. The securities of being well-housed on well irrigated land should be emphasized over the insecurities of living on the move and being subject to the privations inherent in migration practices. Some illustrative method must be instituted whereby the nomad can come to see his contribution to the livestock industry in terms of the good of the country as a whole. This program of education must be strenuously applied by Task Force members since hit-and-miss techniques have proven to be disastrous in the past. The educational program must be efficient and systematic and will require

a great deal of determination on the part of the Task Force educators. This means that the Task Force itself must be comprised of individuals who are dedicated to the <sup>course</sup> course of improving the nation's livestock industry and who appreciate the important role the nomads are playing in it. Task Force educators will have to exercise flexibility and innovation if their efforts at improving the nomads' livestock techniques are to be crowned with success.

Another important aspect of this on-the-site instructional technique will be to stress the rapidly changing ecological and economic situations in the country. The nomads must be instructed in the rudiments of population/to land/to livestock ratios. They must be made aware that only through gradual changing to proven techniques of animal husbandry can they hope to keep pace with the increases in human population and the rising demands for animal proteins. Failure to convey this basic postulate to them in terms which they can easily comprehend may mean the failure of the entire program since their co-operation is so vitally needed in terms of current livestock-rearing situations.

There must be cultural as well as governmental incentives offered to the nomad. In other words, the nomad must come to see that cultural esteem can no longer be derived merely from cattle ownership but that cultural esteem can be derived from QUALITY cattle rearing and from DEMONSTRATED CONCERN for the welfare of the country itself. These basic attitudinal improvements are essential to the success of any wide-scale livestock programs.

#### B. Improvements Needed in Livestock Production Itself

There are a number of techniques which could prove instrumental in improvement of Nigerian livestock production. One of the first of these techniques, and perhaps the one which should be most strongly emphasized,

is the principle of cross-breeding. While certain exotic breeds have been imported to Nigeria, and while these breeds provide a higher ratio of meat per animal than do smaller indigenous breeds, these exotic breeds have proven to be far less tolerant to tropical climatic and disease conditions than the indigenous breeds. Though the indigenous breeds such as the Zebu cattle may be smaller than the imported breeds, and because of this difference in physical stature provide less beef per animal, they can be raised more economically and in larger quantities than their exotic counterparts. Zebu cattle have the added advantage of long-term disease resistance and are already acclimatized to the tropical zone. Since weight-loss owing to migration practices is a major factor in decreased meat production, such weight loss can be avoided by raising quantities of the smaller sedentarized breeds. A program of cross breeding whereby the Zebu are mated with larger animals who produce more meat by volume could easily result in the discovery of a superior breed of cattle.

It is evidence that Nigeria cannot rely solely on exotic cattle breeds as a protein source since such exotic breeds do not thrive well in tropical settings.

The need for cattle migration could be alleviated by participating in a conscientiously applied program of co-operative disease control such as the experimental trypanosomiasis control program currently undertaken by I.L.R.A.D. in Kenya. Once again, members of the National Youth Service Corp can be utilized as observers to the programs being instituted in that country.

By removing some of the causes of cattle migration, it is also possible to preclude contact with disease infected herds which might otherwise be encountered during migration.

Until such programs become a reality, the mass castration of old and inferior breeding bulls is of paramount importance. Given the ratios of male to female cattle of breeding age, it is obvious that nomadic herds are overpopulated by inferior strains of livestock. Only those bulls of superior quality should be left with their reproductive organs intact. Only in this event will there be any immediate improvement in general livestock quality. While the beef-producing livestock are most desirable in terms of meat yield per animal, the smaller breeds of livestock including goats and sheep are important protein sources as well. Since sheep and goat are smaller and more economical to husband, they should receive more attention in terms of augmenting existing meat supplied. Here again, those breeds which have proven to be disease resistant and acclimatized to tropical conditions will prove to be more economical to husband than any exotic breeds. While research is being done in the field of larger livestock production, these smaller animals can provide quantities of the proteins which are so urgently needed in the Nigerian diet.

#### THE POTENTIAL OF THE SOUTH

Because the north has for so long been the traditional source of meat for the entire country, there is the tendency to over-emphasize the reliance of the nation for its meat on this area and assume that future requirement can only be derived from the north. A review of the potential of the southern region as a major livestock producing area is recommended.

If successfully implemented, the program of tsetse eradication through bush clearings and use of chemicals as aerial sprays may open up the south as a major livestock area.

Also it may be necessary to study the possibility of rearing the larger breeds of cattle in the southern region. The so-called trypano-tolerant dwarf breeds in the south may not prove very good for the kind of dynamic livestock development envisaged in view of their slow maturity and low maturity weights.

It is my opinion that the larger northern breeds if raised in the south and exposed to the problem of trypanosomiasis early enough may prove as tolerant to the disease.

#### ENCOURAGING SEDENTARY COMMUNITIES TO RAISE ANIMALS

Nigerians other than the nomads should be encouraged to own and raise cattle, sheep, goats, etc. The thinking is that this group of people will be more amenable to innovations and will adopt modern animal husbandry practice more easily.



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