

ECONOMIC DEVELOPMENT OF THE LIVESTOCK INDUSTRY IN THE SUBSISTENCE AGRICULTURAL ENVIRONMENTS OF SOUTHERN AND EASTERN AFRICA: DROUGHT, LIVESTOCK NUMBERS, HUMAN POPULATION GROWTH AND ANIMAL DISEASES*

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Introduction

The subsistence agricultural environments of southern and eastern Africa are largely tribal in nature and in many instances cover vast tracts of land. The populations of many of these environments virtually constitute nations within nations. With regard to the economic development of the livestock industry in such areas or regions, most attention is directed towards cattle^{1 2 3 4 5 6 7}

^{8 9}. Although all classes of livestock are of importance in African subsistence agriculture, cattle in general form the most significant holdings and therefore are integral to this subsistence system. It is therefore essential to understand the functions of cattle within the system.

Cattle provide milk, meat, blood, hides, labour, fuel and capital gain in terms of herd replenishments. These are all important commodities in any subsistence environment. However, in addition and most important, in the African subsistence agricultural environment, cattle are a primary source of food in years of drought when maize, sorghum and other agricultural crops fail. Under these circumstances cattle provide an immediate source of fresh meat when they die of starvation or thirst. Thus in broad terms, it is the function of cattle in African subsistence agriculture, to produce milk and to grow fat in the summer when grass is plentiful, and on death, preferably in the winter or under drought conditions, to be absorbed into the food chain as meat.

It is well-known that most of the tribal

communities of southern and eastern Africa are reluctant to sell cattle, and schemes which involve a planned reduction in numbers, are generally unacceptable to them. It is the purpose of this paper to show that in the African subsistence agricultural environment there are a number of factors which support these viewpoints and appear to justify related animal husbandry practices.

Any factor which influences the subsistence agricultural system in any part of southern and eastern Africa, warrants thorough investigation. Factors requiring special consideration are drought, cattle numbers, human population growth, and animal diseases, especially cattle diseases of a death-related and epizootic nature. The land tenure factor which is also important to the economic development of the cattle industry, and the livestock industry as a whole, is however largely hypothetical to most parts of southern and eastern Africa and thus receives only limited mention, namely in relation to the long-term outlook. Tribal laws and social customs, which are complex matters, are not discussed, as to a large extent, these have been determined over countless generations with due regard to the conditions of the environment.

Drought and African subsistence agriculture

In African rural communities, cattle are often referred to as the wealth of the individual or the family. The term "wealth" however, in its normal context, is inclined to draw the perception away from the basic function of cattle, which is, in the long-term, to provide a source of food during years of drought, although food of any kind, in times of drought and starvation, is indeed "wealth".

Drought is greatly feared in all African subsistence agricultural environments. Drought causes failure of agricultural crops and at the end of summer, pros-

pects for family survival during the coming winter or dry season look grim. Prospects for those with moderate to large cattle and other livestock holdings look better, as the death of livestock which inevitably occurs in the winter or dry season, supplies a ready source of fresh meat, and as long as water is available, family survival is assured. Indeed in the African subsistence agricultural environment, cattle and other livestock can be regarded as walking refrigerator systems, which provide a ready source of fresh food as local conditions deteriorate.

At this point it should be appreciated that in the African subsistence agricultural environment, drought often means family uprootment and translocation to a viable water source. Livestock, in their walking refrigerator capacity, greatly facilitate this translocation, as they provide food during the journey and of course at the ultimate destination. Man can survive a drought as long as he has livestock, but man and his livestock die side by side when there is no water.

The physical and psychological effects of drought on African subsistence agricultural populations are often overlooked by people, such as town dwellers, who are sheltered from the rigours of the environment, themselves being accustomed to an infra-structure of roads, electricity, water, food supplies, shops and other amenities, which make them relatively independent of local weather conditions. To aggravate the overall position, drought is not an uncommon circumstance in many parts of southern and eastern Africa.

Losses of livestock in years of drought should not be regarded as a loss of "individual wealth", or for that matter as a waste, but rather as the utilisation of a food crop, when no other food crops are available for consumption. Even in normal years, a certain number of livestock die of starvation in the winter

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or dry season, but again as in drought, such animals are absorbed into the food chain.

Livestock numbers and African subsistence agriculture

Grass is the most freely available crop in the African subsistence agricultural environment. Grass is converted by cattle and other livestock, into milk, meat and other items for human use. This conversion requires only limited effort on the part of the livestock owner. Agricultural crops, on the other hand, require a high labour input in terms of ploughing, planting, weeding and harvesting. With grass widely available in the summer months, it is understandable that African subsistence agricultural populations seek to keep large numbers of livestock, even although a percentage are lost due to starvation in normal years. Even in a drought year, losses are seldom above one third, and in a 2-year drought period, about half of the survivors from the first year die, to give an overall loss of two thirds of the original holding. On return to normal conditions, the herds and flocks are replenished by means of increased fertility: there being less competition for grass and edible shrubs.

By and large, African subsistence agricultural population fears for family survival in drought are not unreal and in this regard, large numbers of livestock help to procure a fully justified sense of security and are a sound backup to possible agricultural crop failure. Large numbers of livestock also provide a buffer to the effects of untoward illness within the individual family itself and, protection against the ravages of epizootic disease in livestock holdings.

The effect of human population growth on livestock numbers in African subsistence agriculture

Customary, social and economic considerations have led to the development of large families in most parts of the African subsistence agricultural environment. A lowering of childhood mortality in southern and eastern Africa over the last 3 decades has given rise to unrestricted human population growth in the areas under consideration. This human population growth is in itself a spur to the desire and need to keep large numbers of cattle and other livestock. The primary objective of keeping large numbers of livestock, is of course, to prevent family starvation in the event of drought and agricultural crop failure.

Veterinary science and African subsistence agriculture

The veterinary departments of the various countries of southern and eastern Africa have no control over drought, but

they can to a large extent control animal diseases. Given the support of the local populations, they can keep untoward outbreaks of epizootic diseases to a minimum. Failure to control animal diseases, especially death-related epizootic diseases such as East Coast fever, blackquarter, pleuropneumonia, rinderpest, pasteurellosis and anthrax for example, aggravates the instability of drought-prone subsistence agricultural environments. The reason is that animal diseases affect the ultimate human food resources in times of drought. Thus fears of animal diseases and drought, as a combined set of circumstances, further increase the psychological stress associated with African subsistence agriculture and its particular demands on family survival. It follows therefore, that animal disease control is essential to the economic development of the livestock industry in African subsistence agriculture, especially in parts which are drought-prone. A breakdown in animal disease control can result in a loss of confidence in the various departments. This confidence would be hard to regain, the position being very different from that in western countries where animal disease stability is regarded as a normal state of affairs.

Economic development of the livestock industry in African subsistence agriculture

Once the place of animals in the African subsistence agricultural environment is understood, attention may be given to economic development of the livestock industry.

Tribal communities with the largest livestock holdings are generally those who live in the arid and semi-arid areas. The ravages of drought over countless generations have led to this situation. Programmes to destock in these areas, either by voluntary or compulsory marketing are unlikely to succeed in the long-term. In general, planned schemes of reducing livestock numbers have shown limited success in these environments of southern and eastern Africa. Despite the fact that the arid and semi-arid areas are usually the most disease-stable parts of a country, fears of the consequences of drought are an overriding factor: large livestock holdings placate fears of family starvation.

If solutions are to be found to the problems of economic development of the livestock and particularly the cattle industry, they should be looked for in the high rainfall areas. In these areas drought is rare, grass cover is good, milk is normally plentiful and, tick-borne disease is largely enzootic, and therefore, in a relatively stable form. Furthermore, the communities of these

areas often enjoy cash crop benefits, as derived for example, from the sale of cotton and sugar. As a consequence, fears of family starvation are not so prevalent in these high rainfall areas and it may be possible to seek methods of planned marketing and development in such parts.

In these high rainfall areas of potential development, the veterinary departments concerned need to practice a standard of tick-borne and other disease control adequate to maintain disease stability. In the longer term, and depending on geographical location, it is desirable that supplies of animal disease medicines be readily available in the high potential areas. Coupled to this would be the need for the employment of adequate numbers of veterinary and animal health personnel to advise on the use of such medicines. The advent of land tenure or equivalent concept may demand a much higher clinical input from veterinary and animal health personnel. Should land tenure be accompanied by a reduction in livestock numbers, then individual animals would assume more importance on both monetary and emotional bases. This will almost certainly require re-appraisal of livestock and, veterinary and animal health personnel ratios.

If economic development of the livestock industry is to take place in the African subsistence agricultural environment, it is essential that agricultural, veterinary and animal health personnel develop a less westernised approach to the problem, have an understanding of the subsistence environment and have, at the least, a sympathetic appreciation of the rigours of life in the drought-prone subsistence agricultural environments of southern and eastern Africa. Furthermore, efforts to stimulate economic development of the livestock industry require direction, and in this connection anthropological contributions are pertinent.

African sayings and African subsistence agriculture

There is an east African saying that "the cow's grave is man's belly". Taken together, these sayings emphasise the importance of milk and meat in African subsistence agriculture and, the very close relationship, which exists throughout southern and eastern Africa, between man and his cattle. If economic development of the livestock industry, and the cattle industry in particular, is to take place in a sustainable manner in the African subsistence agricultural environment, these concepts should not be ignored.

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